# THE LANCET.

**A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.**

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XVIII. of Vol. I., 1920.
**No. 5044. Vol. CXCVIII.** LONDON, SATURDAY, MAY 1, 1920. **Pp. 112—Price 10d.**



## OXFORD MEDICAL PUBLICATIONS.

*Ready in May.*

PLASTIC SURGERY OF THE FACE.
BASED ON SELECTED CASES OF WAR INJURIES OF THE FACE, INCLUDING BURNS.
By H. D. GILLIES, C.B.E., F.R.C.S., Major R.A.M.C., Surgical Specialist to the Queen's Hospital, Sidcup; Surgeon in Charge of the Department for Plastic Surgery.
Medium 4to. Cloth. 424 pages. With 834 Illustrations.

COMMON INFECTIONS OF THE KIDNEYS.
WITH THE COLON BACILLUS AND ALLIED BACTERIA.
By FRANK KIDD, M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to London Hospital; Surgeon in Charge of Genito-Urinary Department, London Hospital; Member of the International Society of Urology.
With an additional Chapter on the BACTERIOLOGY OF THE URINE, by Dr. PHILIP PANTON, Clinical Pathologist, London Hospital.
Demy 8vo. Cloth. 336 pages. Illustrated in Colour and Black-and-White.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

NOW READY. Demy 8vo. Pp. xvi. + 366. Price 12s. 6d. net. Postage 6d.

A MANUAL OF NEURASTHENIA. By IVO GEIKIE COBB, M.D., M.R.C.S., Neurologist, Ministry of Pensions; late Assistant to Out-patient Physician, the Middlesex Hospital; formerly Neurologist, Brinnington Section, Second Western General Hospital.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C. 2.

Demy 8vo. 412 pages, 12 Plates, and 122 Illus. Cloth. Price 10s. 6d. net.

EYE, NOSE, THROAT, AND EAR.
A Manual for Students and Practitioners.
By JAMES FORREST, M.B., Ch.B. Edin.
Henry Kimpton, Medical Publisher, 263, High Holborn, London, W.C.

Price 21s. net. Post free (inland), 21s. 9d.

NINETEENTH EDITION (REPRINTED).

## SQUIRE'S COMPANION.

"SQUIRE'S COMPANION is a work of great practical value to medical practitioners, as well as to pharmaceutical chemists, dispensers, and pharmacologists."—THE BRITISH MEDICAL JOURNAL.

Published by J. & A. Churchill, 7, Great Marlborough-st., London, W. 1.

Royal 8vo. 395 pages. 12 Plates and 72 Illustrations. Cloth. 15s. net.

GONORRHŒA AND ITS COMPLICATIONS IN THE MALE & FEMALE. By DAVID WATSON, M.B., C.M.
"The best monograph on gonorrhœa in the English language."
Henry Kimpton, 263, High Holborn, London, W.C. —BRIT. MED. JOUR.

SECOND EDITION. In 2 vols. 45s. net.

DEFORMITIES, including DISEASES of the BONES and JOINTS. A Text-book of Orthopædic Surgery. Illustrated by 70 Plates and over 1000 Figures, and by Notes of Cases.
By A. H. TUBBY, C.B., C.M.G., M.S.
Second Edition: "The standard text-book in English on the subject." —THE LANCET.
First Edition: "Standard work on the subject in the English language."—BRITISH MEDICAL JOURNAL.
Macmillan & Co., Ltd., St. Martin-street, London, W.C.

New (3rd) Edition. With 22 Illustrations. 15s. net; postage 6d.

VICIOUS CIRCLES IN DISEASE.
By J. B. HURRY, M.A., M.D. (Cantab.).
Sir CLIFFORD ALLBUTT says:—"This aspect of medicine is one which no practitioner of the *ars medendi* can afford to neglect."
London: J. & A. Churchill, 7, Great Marlborough-street, W. 1.

ELLIS'S MEDICAL LIBRARY
FOR
NEW BOOKS OF ALL PUBLISHERS.
See also Page 4.
9, Lovell's Court, Paternoster-row, E.C. 4.

NOW READY. SECOND EDITION. Demy 8vo. Pp. viii. + 438. With 129 Illustrations. Price 18s. net. Postage 6d.
TEXT-BOOK OF
OPHTHALMIC OPERATIONS.
By HAROLD GRIMSDALE, M.B., F.R.C.S. Eng.; Ophthalmic Surgeon, St. George's Hospital, &c.; and ELMORE BREWERTON, F.R.C.S. Eng., Consulting Ophthalmic Surgeon, Metropolitan Hospital, &c.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C. 2.

Second Edition, Enlarged. Crown 8vo. 7s. 6d. net.
With 31 original Photographs and 150 special Prescriptions.
TREATMENT OF DISEASES OF THE SKIN.
By KNOWSLEY SIBLEY, M.D. Camb.
London: Edward Arnold, 41 and 43, Maddox-street, W. 1.

ESSAYS ON THE SURGERY OF THE TEMPORAL BONE.
By Sir CHARLES A. BALLANCE, K.C.M.G., D.S., M.V.O., M.S., F.R.C.S., Consulting Surgeon to St. Thomas's Hospital, &c.
Illustrated by 125 Plates (40 in Colour) and 120 Figures.
In 2 Volumes. Medium 4to. Price 5 guineas.
Macmillan & Co.

BY P. LOCKHART-MUMMERY, F.R.C.S.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT,
AND
DISEASES OF THE RECTUM AND ANUS.

Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

By LESLIE THORNE THORNE, M.D., B.S., &c.

NAUHEIM TREATMENT in ENGLAND of DISEASES of the HEART and CIRCULATION.
Fifth Edition. Enlarged and re-written, much new matter. Price 5s. net.
Pp. vi. + 160. With 27 Photographs of RESISTANCE-Exercises and 65 other Illustrations. Polygraphs, &c.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

## WARBASSE'S SURGICAL TREATMENT

"*The standard of excellence is very high indeed, and the teaching thoroughly sound. Every surgeon should be the possessor of this work, and we predict for it a great success.*"—DUBLIN JOURNAL OF MEDICAL SCIENCE.

"*It is a timely and complete reflex of the teachings of the American School of Surgery, and will remain a sound guide for years to come.*"—SOUTH AFRICAN MEDICAL RECORD.

By JAMES PETER WARBASSE, M.D., Surgeon to the Wyckoff Heights Hospital, Brooklyn, New York. Three octavo volumes of 2637 pages, with 2400 illustrations. Desk Index volume free. Per set, £6 6s. net.

**Send for Descriptive Circular.**

**W. B. SAUNDERS COMPANY, Ltd., 9, Henrietta St., Strand, LONDON, W.C. 2.**

# AIX-LES-BAINS

SAVOY, FRANCE. 8 hours from PARIS, on the direct route from Paris to Rome. On the border of Lake Bourget.

**Successful Treatment of**

**RHEUMATISM**

**GOUT SCIATICA**

**SEQUELÆ OF WAR WOUNDS**

Treatment by

Massage while under the Douche.

Thermal Sulphurous Radioactive Waters 117° F.

OPEN ALL THE YEAR.

**DIURETIC WATERS** { Deux-Reines. Saint-Simon. Massonat.

**ZANDER INSTITUTE** Physiotherapy.

Springs of **MARLIOZ** strong sulphurous waters for throat and bronchial affections.

AIX-LES-BAINS is the most beautiful and important CENTRE OF TOURIST ACTIVITY in the FRENCH ALPS (64 different Excursions).

Splendid Climate. High level resort: MONT-REVARD, 5250 feet.

For all further particulars apply to the Comité d'Initiative, Aix-les-Bains.

# Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach, Aiding Digestion** and **Sustaining** and **Strengthening, Valentine's Meat-Juice** is employed in **Hospital** and **Private Practice** in the treatment of

**Diseases of Children**

**Dr. Raphael Raimondi,** *Consulting Physician of the Montmartre Nurseries, Paris, France:* "I use VALENTINE'S MEAT-JUICE with Nurslings eighteen months to two years old. These very Weak Babies derive great benefit from the use of this tonic preparation. I give it to Debilitated Infants, after they are eighteen months old, in doses of one teaspoonful in thirty grammes of boiled water twice a day, and to be continued for a month."

**Park B. Tucker, M.D.,** *Health Officer, Hamilton, Bermuda:* "I have found VALENTINE'S MEAT-JUICE invaluable for teething children, who readily take and retain it when they refuse everything else. It has also proved very palatable and strengthening in all cases of irritable stomach, especially to that peculiar nausea so often complained of from the abuse of ardent spirits."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
D 117 RICHMOND, VIRGINIA, U.S.A.

# THE LANCET.

No. 5044. LONDON, SATURDAY, MAY 1, 1920. Vol. CXCVIII.


# CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.


**MILROY LECTURES** on the Higher Fungi in Relation to Human Pathology. Delivered before the Royal College of Physicians of London by ALDO CASTELLANI, C.M.G., M.D., M.R.C.P. Lond., Physician to the Tropical Hospital (Ministry of Pensions); Lecturer at the London School of Tropical Medicine.—Lecture III.—*(Illustrated)* ..... 943

**ORIGINAL ARTICLES.**

The Pellagra Outbreak in Egypt. I.—Pellagra among Ottoman Prisoners of War. By A. DOUGLAS BIGLAND, B.A. Cantab., M.D. Liverp., M.R.C.P. Lond., Honorary Physician, David Lewis Northern Hospital; Lecturer in Clinical Medicine, University of Liverpool; Hon. Captain, R.A.M.C.—*(Illustrated)* ..... 947

Intra-cardiac Pressure as a Standard in Cardiotherapy. By I. HARRIS, M.D., Hon. Physician, Cardiographic Department, David Lewis Northern Hospital, Liverpool ..... 954

Two Cases of Intramedullary Tumour of the Spinal Cord, with Operation. By ANTHONY FEILING, M.D. Cantab., M.R.C.P. Lond., Physician to the Hospital for Epilepsy and Paralysis, Maida Vale; Assistant Physician to the Metropolitan Hospital; Casualty Physician to St. Bartholomew's Hospital.—*(Illustrated)* ..... 957

Novocaine Anæsthesia. Some Disadvantages from a Surgical Standpoint. By G. H. C. ST. GEORGE GRIFFITHS, M.R.C.S., L.R.C.P. Lond., late Surgeon-Lieutenant, R.N.; Anæsthetist and Surgeon-Lieutenant "Operator-in-Chief" to Royal Naval Hospital, Haslar ..... 960

The Chinese Hospital in France, 1917-1919. By C. FREDERICK STRANGE, M.R.C.S., F.R.G.S., Captain, R.A.M.C.; Médaille d'Honneur des Epidémies .. 960

**MEDICAL SOCIETIES.**

Royal Society of Medicine: Section of Pathology ..... 961
Section of Electro-therapeutics ..... 962
Société de Thérapeutique de Paris ..... 962
London Association of the Medical Women's Federation ..... 963
Cardiff Medical Society ..... 963

**REVIEWS AND NOTICES OF BOOKS.**

Industrial Medicine and Surgery. By H. E. Mock, B.S., M.D. ..... 963
Industrial Nursing. By F. S. Wright ..... 964
The Social Worker. By C. R. Attlee, M.A. ..... 965
Popular Chemical Dictionary. By C. T. Kingzett, F.I.C., F.C.S. ..... 965
Pulmonary Tuberculosis. Second edition. By Maurice Fishberg, M.D. ..... 965
Mechanical Dentistry. Seventh edition. By Charles Hunter ..... 965
Parasitology ..... 966
La Medicina Italiana ..... 966
Il Mondo Medica ..... 966
L'Ospedale Maggiore ..... 966
Archivos Rio-Grandenses de Medicina ..... 966

**LEADING ARTICLES.**

HOSPITAL PRINCIPLES ..... 967
SCIENTIFIC CARDIOTHERAPY .. 968
AN ANTIMALARIAL CAMPAIGN IN PALESTINE ..... 969
The Complimentary Dinner to Sir George Makins ..... 970

**ANNOTATIONS.**

London as a Post-graduate Centre ..... 970
Lead Poisoning and Compensation ..... 970
Epsom College: The Rise in Expenses ..... 971
Catheterism of the Ureter in Calculous Anuria ..... 971
The Best Type of Artificial Leg ..... 972
Secondary Syphilis of the Heart ..... 972
Nitrogen in War and Peace ... 972
Leprosy in India ..... 973
Medical Revanche ..... 973
Medical Inspection of Higher-grade Schools ..... 973
Biological Control of Drugs ... 974
A Medical Survey at Middle Age ..... 974

**SPECIAL ARTICLES.**

The Medical Examination of the Civilian Aeronaut: International Medical Requirements for Air Navigation.—The British Methods of Examination.—The Examination of the Respiratory System.—*(To be continued)* ..... 975

Chicago Health Report: Functions of the Commissioner of Health.—School Hygiene and Infant Welfare. Water and Milk Problems.—Epidemic Diseases.—Tobacco and Opium Attacked ..... 976

Ireland: Ireland and the Medical Research Council. Pathology and Research in Belfast.—Charter Dinner at the Royal College of Surgeons in Ireland ..... 978

Notes from India: Yellow Fever in India.—Small-pox Preventive Measures in Calcutta.—Leprosy in Cochin.—The All-India Medical Conference. — Home for Indian Children. — Retention of Rank in the I.M.S. ... 978

Advertisements in the Medical Press ..... 979

URBAN VITAL STATISTICS:
English and Welsh Towns .. 980
Scotch Towns ..... 980
Irish Towns ..... 980

**CORRESPONDENCE.**

The Relation of General Medicine to Ophthalmology (Mr. Charles Higgens) .. 980
An Unusual Foreign Body in the Ear (Dr. A. P. Gibbons) 981
Lice as a Cause of Ringworm (Dr. Algernon E. L. Wear) .. 981
The Diagnosis of Malaria (Major-General P. Hehir) .... 982
An Anglo-American Library for Central Europe ..... 983
Life in Jamaica (Mr. H. G. Wharry) ..... 991
Plural Births in Three Generations (Mr. Theodore Martin) ..... 992
Home Helps (Dr. W. Allen Daley) ..... 992

**THE SERVICES.**

Royal Naval Medical Service 984
Army Medical Service ..... 984
Royal Army Medical Corps .... 984
Royal Air Force ..... 984
India and the Indian Medical Services ..... 984

**OBITUARY.**

Thomas Jackson, B.A. Lond., M.R.C.S., J.P., Coroner for Croydon ..... 984
William Allen, M.D., M.Ch. & L.M.R.U.I. ..... 953
Eustace Stanley Hayes Gill, M.B., Ch.B. Liverp ..... 985

**MEDICAL NEWS.**

Portsmouth Maternity Hospital ..... 946
Psycho-Neurological Society, Lancaster-gate, W. ..... 946
Hunterian Society ..... 963
Small-pox in Glasgow ..... 983
University of Cambridge: Pass-list ..... 984
University of Glasgow: Degrees conferred ..... 984
Cleansing of Shell-fish ..... 985
The 48th General Hospital, Salonika ..... 985
Medico-Legal Society ..... 985
Rontgen Society ..... 985
University of Manchester Appeal ..... 985
People's League of Health ..... 985
Presentation to a Medical Man ..... 985
Central Midwives Board ..... 985
Welsh National School of Medicine ..... 985
General Nursing Council ..... 986
The National Health Society 986
St. Francis Home ..... 986
Conjoint Board of Scientific Societies ..... 986

**PARLIAMENTARY INTELLIGENCE.**

House of Commons: Promotion of Surgeon Captains.—Medical and Veterinary Students' Grants.—Medical Supervision of Elementary Schools. — Dental Legislation.—Meat Inspection and Public Health. — Alleged Deaths from Starvation ..... 986

**NOTES, SHORT COMMENTS, &c.**

Mother Stays at Home ..... 991
Bristol Board of Guardians and a Consulting Medical Staff ..... 991
Public Health in British Guiana, 1918 ..... 992
"Chastity by Terrorisation" 992
The Matriarchal Family in France ..... 992

Appointments ..... 988
Vacancies ..... 988
Births, Marriages, and Deaths 989
Medical Diary ..... 989
Acknowledgments of Communications received ..... 990



## BALE'S MEDICAL BOOKS AND JOURNALS.

## The Journal of Tropical Medicine and Hygiene.

*Devoted to Medical, Surgical and Sanitary Work in Warm Countries.*

**Embodying Selections from THE COLONIAL MEDICAL REPORTS.**

EDITED BY SIR JAMES CANTLIE, K.B.E., M.B., F.R.C.S., AND ALDO CASTELLANI, C.M.G., M.D., M.R.C.P., IN COLLABORATION WITH W. J. R. SIMPSON, C.M.G., M.D., F.R.C.P., C. M. WENYON, C.M.G., C.B.E., M.B., B.S., AND T. P. BEDDOES, M.B., B.Ch., F.R.C.S.

SIR RONALD ROSS, K.C.B., K.C.M.G., M.D., F.R.S., Colonel A.M.S., Consultant in Malaria, War Office, and Ministry of Pensions; *Honorary Adviser to the Editorial Staff.*

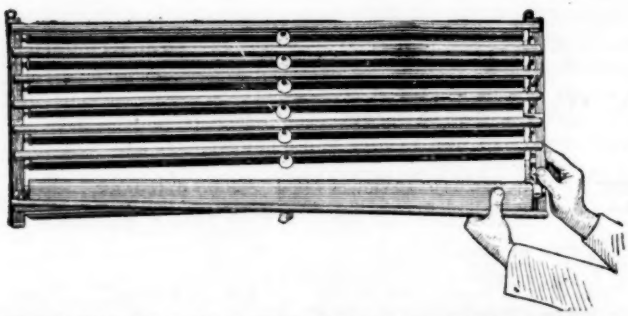
**PUBLISHED FORTNIGHTLY, 1/- Net. Annual Subscription, 21/- Net, post free. Cases for Binding, 5/- Net.**

## Tubercle.

*The only Monthly Journal Devoted solely to all Aspects of Tuberculosis.*

**2/6 Net. Annual Subscription, 25/- Net.**

**JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W. 1.**



## FROHSE ANATOMICAL CHARTS

**PRICE: In Utility Spring Roller Case (as illustrated), £11 net.**
**Single Plates, with Plain Rollers ... £1 10s. net each.**

*For full particulars write to—*

**W. & A. K. JOHNSTON, Limited,**
**2, St. Andrew Square, Edinburgh.**

### 7 PLATES (17 CHARTS).

*(Each Plate, 42 by 66 inches, lithographed in colours.)*

1. (*a*) Human Skeleton, Front View.
   (*b*) Human Skeleton, Back View.
2. (*a*) Muscles, Front View.
   (*b*) Muscles, Back View.
3. (*a*) Nervous System.
   (*b*) Circulatory System.
4. (*a*) Schematic Diagram of Circulation.
   (*b*) Heart and Blood Vessels.
   (*c*) Skin, greatly magnified.
5. (*a*) Ear, greatly magnified.
   (*b*) Eye, greatly magnified.
6. Viscera of chest and Abdomen, showing internal organs by 4 stages of elimination.
7. (*a*) Section through Head.
   (*b*) Teeth, greatly magnified.

## ESSENTIALS OF HUMAN PHYSIOLOGY.

By D. NOEL PATON, M.D., B.Sc., F.R.C.P. Edin.,
Professor of Physiology, the University, Glasgow.

*Fifth Edition. Revised and Enlarged, with 252 Figures throughout the Text.* **25s.** *net.*

"The contents are well and properly chosen, and the facts are given with the accuracy that is to be expected from so accomplished a physiologist."—BRITISH MEDICAL JOURNAL.

W. GREEN & SON, LTD., ST. GILES STREET, EDINBURGH.

**Price 1s. With Illustrations**

## APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

## STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*

*From a Harley Street Specialist.*—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." *(This letter may be seen.)*

"Stammering: Cleft Palate Speech: Lisping." 1s. 8d. post free.

Of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

## STAMMERING

**W. J. KETLEY, "Tarrangower," Brondesbury, N.W.**

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.)

Those interested in the subject should write for his book, which will be sent post free.

## CLOTH CASES FOR BINDING

THE HALF-YEARLY VOLUMES OF

## "THE LANCET"

Can be obtained through any Bookseller in town or country or from THE LANCET Office.

**Price 2s. 6d. each, by post 2s. 10d.**

Office: 423, Strand, London, W.C. 2; and 1 & 2 Bedford-street, adjoining.

## FREDERICKS

Uxbridge Road,
Hayes, Middlesex.

## SANATORIA SPECIALIST.

*Also Makers of*

**MOTOR SHEDS.**

***Come and see the class of goods we manufacture.***

7 ft. × 7 ft. ... ... } Prices upon
8 ft. × 8 ft. ... ... } application.

Revolving Gear, £4 10s. extra.

## SPECIAL OFFER

FOR

## Immediate Sale.

**250 LOUNGE SETTEES and EASY CHAIRS.**

*Removed from St. James's Street Club.*

**These Goods are all of Fine Quality and Equal to New, and being cleared at about Half Original Cost.**

| | | |
|---|---|---|
| Lot A. 4 Chesterfield Suites, each set comprising adjustable end Chesterfield Settee, 5 ft. 9 in. long, exquisitely sprung and covered dark green or marone rexine leather; 2 full-size Lounge Easy Chairs to match, complete ... ... | £26 | 5 0 |
| Lot B. 5 Chesterfield Suites similar to Lot A, but covered art tapestry, complete ... ... ... ... ... ... ... | 26 | 5 0 |
| | Each | |
| Lot 1. 15 small size Lounge Easy Chairs, comfortable and well sprung ... ... ... ... ... ... ... ... | 1 | 15 0 |
| Lot 2. 22 small size Lounge Easy Chairs, very comfortable and well sprung, with loose feather cushion seats ... ... | 2 | 15 0 |
| Lot 3. 18 medium size Lounge Easy Chairs, exceptionally soft and comfortably sprung ... ... ... ... ... | 4 | 17 6 |
| Lot 4. 22 medium size Lounge Easy Chairs, softly sprung, with loose down cushion seats ... ... ... ... ... | 5 | 15 0 |
| Lot 5. 15 round back or Tub-shape Easy Chairs, very softly sprung ... ... ... ... ... ... ... ... ... | 5 | 17 6 |
| Lot 6. 18 magnificent large size Lounge Easy Chairs of exceptional make ... ... ... ... ... ... ... | 7 | 15 0 |
| Lot 7. 15 extra large size Lounge Easy Chairs, very finely sprung, with loose down cushion seats ... ... ... | 12 | 12 6 |
| CHESTERFIELD AND VARIOUS DESIGN SETTEES. | | |
| Lot 8. 12 well-made Universal Settees, softly sprung, with adjustable ends ... ... ... ... ... ... ... ... | 5 | 17 6 |
| Lot 9. 10 well-made Chesterfield Settees, finely sprung, about 5 ft. 6 in. long ... ... ... ... ... ... ... | 7 | 15 0 |
| Lot 10. 14 Chesterfield Settees, very comfortable and finely sprung, with loose feather cushion seats, abt. 5 ft. 6 in. long | 11 | 15 0 |
| Lot 11. 8 large Settees, very soft and finely sprung, about 6 ft. 6 in. long ... ... ... ... ... ... ... ... | 14 | 14 0 |
| Lot 12. 10 large Settees, similar to Lot 10, but with loose down cushion seats ... ... ... ... ... ... ... | 18 | 18 0 |

The above represent only a small portion of these goods, the whole of which can be seen at our depositories, where they are being offered for sale daily between the hours of 9 till 7.

Any single article can be had and can be delivered Town or Country. These goods are at present covered in plain material of great durability some being covered in Government Linen. Arrangements can be made for re-covering in any material, leather, velvet, silks, chintzes, &c., patterns of which can be sent to customers on application, or clients' own materials can be used if desired. LOOSE COVERS for any of these goods can be made by experienced cutters and upholsterers.

*Designs and further particulars sent post free on application.*

## FURNITURE & FINE ART DEPOSITORIES, LTD

*(By Royal Appointment to H.M. the King of Spain),*

48 to 60, PARK ST., UPPER ST., ISLINGTON, LONDON, N. 1.

## CAPSICUM
## "GAMGEE TISSUE."

Sole Proprietors and Manufacturers:

**ROBINSON & SONS, Limited,**
**Chesterfield.**

# Milroy Lectures

ON

# THE HIGHER FUNGI IN RELATION TO HUMAN PATHOLOGY.

*Delivered before the Royal College of Physicians of London*

BY ALDO CASTELLANI, C.M.G., M.D., M.R.C.P. LOND.,

PHYSICIAN TO THE TROPICAL HOSPITAL (MINISTRY OF PENSIONS); LECTURER AT THE LONDON SCHOOL OF TROPICAL MEDICINE.

## LECTURE III.*

*Delivered on March 4th, 1920.*

THE rôle played by fungi in skin diseases is of extreme importance; it suffices to bear in mind the various trichophytoses, the blastomycoses, the sporotrichoses, the mycetomas. It is interesting to note, however, that though, of course, during recent years the all-important rôle played by the higher fungi in dermatology has been amply recognised, not many decades ago most authorities denied them any importance, some considering such organisms to be merely saprophytes, and others going so far as to state that the so-called fungi found in the epidermis and the hairs did not exist, these structures merely representing a granular degeneration of the epidermial cells.

These affections may be separated to a certain extent into two groups: (1) The trichomycoses; (2) the dermatomycoses *sensu stricto*.

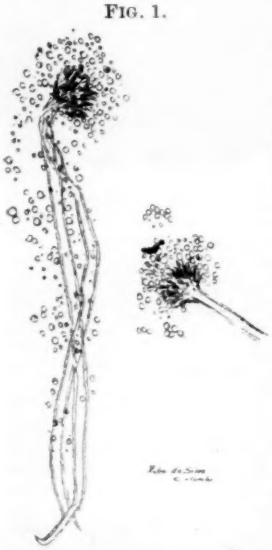
### THE TRICHOMYCOSES.

Of this group I shall say a few words on (1) aspergillomycosis of the beard, and on (2) trichomycoses axillaris, flava, rubra, et nigra.

#### *Aspergillomycosis of the Beard.*

Aspergillomycosis of the beard and moustache appears under the form of minute dark-greyish nodules, one or several on each individual hair. The first case I saw in Equatorial Africa in 1902 in an Indian merchant; later Chalmers and myself observed several such cases in Ceylon. The fungi found are generally of the aspergillar type (Fig. 1), but occasionally organisms of genus *Penicillium* may be seen. The simplest treatment consists, of course, in shaving, but if the patient does not wish to shave turpentine will be found useful.

FIG. 1.



Organisms found in a case of aspergillomycosis of the beard.

#### *Trichomycoses Axillaris, Flava, Nigra, et Rubra.*

This condition has been known under the term lepothrix for many years, but until recently the various types were not differentiated and the ætiology was not completely cleared. In the large literature on the subject the affection is ascribed to the most diverse germs: Eisner describes a diplococcus, Payne, Patterson, and Pick various bacilli, among which is *B. prodigiosus*. The condition is characterised by the presence on the hairs of the axillary region (occasionally of the pubes also) of small nodular formations. These nodules may be, in my experience, yellow, or black, or red. I have therefore differentiated three varieties of the affection: Trichomycosis axillaris flava, Trichomycosis nigra (Figs. 2 and 3), Trichomycosis rubra. †

FIG. 2.

Trichomycosis axillaris flavis.

FIG. 3.

Trichomycosis axillaris nigra.

At times one axilla may show the variety nigra, and the other the variety rubra or flava; occasionally, the same axilla and even the same individual hair may present two varieties at the same time. In Ceylon and Southern India the three kinds—yellow, black, and red—are common; in North Africa mostly the yellow kind is seen, and at times the red; the black variety seems to be absent in Europe.

During the researches I carried out in Ceylon in 1911 on the ætiology of *Trichomycosis axillaris* I came to the following conclusions.

The yellow variety, *Trichomycosis flava*, is caused by a fungus of the genus *Nocardia* (*Streptothrix*), which I called *Nocardia tenuis*. The black variety is caused by the same nocardia plus a black pigment-producing coccus, which lives in symbiosis therewith. This coccus I succeeded in growing; the colonies after a time become jet black. I called it *Micrococcus nigrescens*. The red variety is caused by the same *Nocardia* (*N. tenuis*) plus a red pigment-producing coccus, which I cultivated on various media. The coccus gives rise to red colonies and has been further investigated by Chalmers and O'Connell, who have paid me the compliment of giving it my name. Macfie has recently described a subvariety of Trichomycosis rubra: *T. fusca*.

*Trichomycosis axillaris* is an affection of little or no importance, but I have known European ladies in the tropics greatly distressed by it, as when they wear a low-necked dress the disfiguring red or black patches in the axillary regions are quite visible. It is a curious fact also that natives when affected with trichomycosis seem to regard it with disgust and readily seek treatment, and Chalmers and O'Connell have recently brought forward the suggestion that the general custom of shaving the axillary hair among certain native tribes may have originated in their profound dislike of this complaint. The treatment which I found most successful in Ceylon, apart, of course, from shaving, was dabbing the hair two or three times daily with a 1 per cent. alcoholic solution of formalin, with the application of sulphur ointment at night.

### THE DERMATOMYCOSES SENSU STRICTO.

As regards the second group I propose touching briefly on the following: (1) tinea flava, (2) tinea nigra, (3) cryptococcosis epidermica, (4) acladiosis, (5) blastomycosis, (6) dhobie itch (tinea cruris), and (7) tinea imbricata.

#### *Tinea Flava.*

Ninety per cent. of the natives of the low country in Ceylon are more or less affected with this mycosis. It generally starts at a very early age, spreading slowly,

* Lectures I. and II. appeared in THE LANCET of April 17th (p. 847) and 24th (p. 895), 1920, respectively.

† See Castellani and Chalmers's Manual of Tropical Medicine, p. 2101.

and seldom, if ever, disappears completely. Variously shaped bright yellow spots are seen most commonly on the neck and chest, but any part of the body may be affected. In Singhalese poetical literature reference is often made to the tiny canary-coloured beauty spots present on the face of Ceylon young women. These spots, so much admired by native poets, who have coined a special poetical expression for them ("gomera"), are in reality merely minute patches of tinea flava, and are produced by the fungus I described under the name of *Malassezia tropica*. Sometimes all the patches of tinea flava coalesce together, giving rise to the diffuse form of the disease. Occasionally one is surprised to see a Singhalese or Tamil native with the face, chest, and trunk of much lighter colour than other natives; on closer examination it will often be found that this apparent lighter colour of the skin is merely due to a diffuse form of a very light variety of tinea flava. Tinea flava was considered to be, until recent years, identical with pityriasis versicolor of temperate climates. I separated it for the following reasons: (1) Tinea flava affects the face more frequently than any other region of the body; (2) it is extremely chronic, developing in early childhood and lasting for life; (3) it is most difficult to cure; (4) the fungus, which I called *Malassezia tropica*, seems to have almost a permanent disturbing action on the pigmentation processes of the skin, as even when the fungus has been destroyed the patches remain discoloured for a very long time, months and years, though they may in the end become again normally pigmented.

The treatment, as I have already stated, is most difficult; turpentine is at times useful, and on covered parts of the body a chrysophanic ointment may be used.

### *Tinea Nigra.*

This tropical dermatomycosis, fairly common in natives, is characterised by the presence of jet-black patches due to a fungus of the genus *Cladosporium* which I called *C. mansoni* in honour of Sir Patrick Manson. This fungus grows on glucose and maltose media, giving rise to black colonies. It may attack Europeans, as shown by the following case. A European medical man went to Burma for a pleasure trip. On coming back to Ceylon he noticed a roundish, very slightly elevated, black spot on the palm of his left hand. This spot slowly increased in size for two months, becoming the size of a sixpenny-piece. A single application of formalin made it disappear, but three months later it reappeared. A second application of formalin cured the condition permanently. From the patch, before treatment, cultures were made and a cladosporium isolated identical to that found in native cases.

### *Cryptococcosis Epidermica.*

Many years ago I noticed on the skin of one of my bungalow servants several brownish patches, which looked very much like dirt. He told me, however, that they did not disappear on using soap. I made a scraping and saw that these patches consisted of a large number of budding cells which I believed to be saccharomyces. I found the same patches, not only in other natives, but also in Europeans, especially on the chest and arms, and called the condition saccharomycosis epidermica, which term I changed later into the more correct designation cryptococcosis epidermica. I did not succeed in growing the fungus. Recently Chalmers and others have confirmed my findings in the Sudan and North Africa, but the organism has not yet been cultivated. As to treatment, ordinary soap will not remove the patches; sand soap occasionally does. In obstinate cases the patches may be touched with an alcoholic solution of salicylic acid, and then a salicylic-sulphur ointment may be applied.

### *Acladiosis.*

This dermatomycosis, described by me some years ago, is caused by a fungus of the genus *Acladium*. I grew the fungus from the lesions and sent cultures to Professor Pinoy, of the Paris Pasteur Institute, who kindly described it botanically, and honoured me by calling it after my name. I quote his description.

"The growth on artificial media (such as carrot, potato, glucose-agar) consists of many small roundish masses (Fig. 4) which later on may coalesce, and are covered by spiculated formations, giving them a prickly appearance, and consisting of erect, straight filaments, parallel to each other, or at times interlacing. These filaments are approximately 2 microns in diameter, and carry laterally pseudoconidia of variable shape, cylindriform, pyriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns in length, and have a breadth of 3 microns. This type of fructification recalls the type *Acladium*, described by Bodin in certain species of the genus *Trichophyton* (Malmeten, 1848). These pseudo-conidia become detached and then develop by sprouting, and mycelial filaments are formed. Certain filaments produce spherical chlamydospores arranged in small strings, as found in certain fungi of the genus *Fusarium*. These small chains of chlamydospores are very frequently terminal, the dimensions being variable —8-10 microns."

FIG. 4.

Growth of *Acladium castellanii*, Pinoy.

The affection is observed in Ceylon and the Federated Malay States, and during the war I found a case in Macedonia. Clinically, this dermatosis is very characteristic; in a well-marked case ulcerative lesions are present all over the body. The ulcers (Fig. 5) are roundish or oval, sharply defined, and with a red granulating fundus. There is often a fairly abundant purulent secretion, which dries up in thick bright yellow crusts covering the ulcers. Occasionally gummatous nodules and furuncle-like lesions are seen. The course of the disease is very long, and generally there is very little or no tendency to spontaneous cure. Potassium iodide when given in full doses is generally successful.

FIG. 5.

A case of acladiosis, showing characteristic roundish or oval ulcers, with sharply defined edges and a granulating fundus.

### *Blastomycosis.*

The term blastomycosis is generally applied to affections due to fungi of the genera *Saccharomyces*, *Cryptococcus*, *Monilia*, *Oidium*, and *Coccidioides*. The clinical appearance may greatly vary; the cases I have seen may be classified into three principal groups: 1. The cutaneous type. 2. The muco-cutaneous type. 3. The gluteal blastomycosis.

1. *Cutaneous type.*—This type is characterised by verrucose patches with minute abscesses, is quite common in Ceylon and other tropical countries, and occasionally cases are seen also in temperate climates.

2. *Muco-cutaneous type.*—In this type the disease attacks not only the skin, but also the mucosæ, principally the oral mucosa and the pharynx, giving rise to numerous small verrucoid papillomatous or frambœsiform patches, which later may ulcerate. This type is common in South America, where it has been investigated by Splendore and others, but a very similar type is found also in Ceylon and other tropical and subtropical countries. Three weeks ago I saw a demobilised officer with lesions on the left angle of the

mouth, portions of the oral mucosa and of the tongue, which closely resembled a syphilide. The lesions had made their appearance in Egypt. The patient denied ever having contracted syphilis; moreover, in Egypt his blood was examined for a Wassermann three times, always with negative result. Notwithstanding the negative Wassermann the patient had several salvarsan injections and a long course of mercurial treatment without any benefit. In scrapings from the lesions I found a few yeast-like bodies, and culturally I have grown a fungus which resembles more a monilia than a saccharomyces or a cryptococcus. Under treatment by iodide of potassium the lesions are already very much better.

3. *Gluteal blastomycosis.*—This variety has been described by Kartulis in Egypt, and I have seen cases in Ceylon. The gluteal regions present a diffuse induration, and are riddled with numerous openings from which a thin purulent liquid exudes. Fungi of the genus *Saccharomyces* or *Monilia* are generally isolated from the pus.

As regards the prognosis, this is on the whole favourable in the cutaneous type provided an appropriate treatment is carried out—much less favourable in the muco-cutaneous and in the gluteal varieties. It must also be remembered that occasionally the organisms enter the general circulation and give rise to a pyæmia-like fever. Occasionally, in fact, one comes across cases of blastomycetic septicæmia without any skin lesion, and these cases, as a rule, terminate fatally.

### *Dhobie Itch.*

I know of very few Europeans who, after one or two years residence in the tropics, have not contracted that most distressing and intensely itching condition of the inguino-scrotal region, which is known all over the East as dhobie itch, from the popular belief that it is acquired from underclothing and linen contaminated while being washed by the dhobie (native laundryman).

What is dhobie itch? It is in reality the old eczema marginatum described by Hebra. The history of the disease is briefly the following: About the middle of last century Hebra in Vienna described eczema marginatum of the inguinal regions. Later trichophyton-like fungi were found by various observers, and the condition was considered to be an inguinal localisation of tinea corporis, and the fungus was believed to be the same as *Trichophyton tonsurans*. In Ceylon in 1905, having found a fungus somewhat different from those observed in the usual types of tinea corporis, I suggested that the condition should be definitely separated from this disease. This fungus was characterised by its neglect to attack the hair or hair follicles and by the colour of its colonies on maltose or glucose-agar; these are of a peculiar lemon-yellow or orange-yellow colour. I called it *Tricophyton cruris*. In 1907 the same fungus was found by Sabouraud in France and called *Epidermophyton inguinale*. I sent cultures of the Ceylon strain both to Sabouraud and Pinoy, and they concluded that the French strains and the Ceylon strains were identical. According to the laws of nomenclature the correct name is *Epidermophyton cruris* and not *Epidermophyton inguinale*, as when a fungus is moved from one genus into another it does not lose its specific designation. As is well known, the generic designation of an organism may be changed, but the specific designation cannot be altered. In 1909 I found that certain cases of dhobie itch were due to a different epidermophyton (*E. rubrum*), and later I observed that a few cases were due to a true trichophyton (*T. nodoformans*). There are therefore three species of fungi which may give rise to dhobie itch—*E. cruris*, *E. rubrum*, and *T. nodoformans*.

1. *E. cruris*, as already stated, is characterised by its lemon-yellow or orange-yellow colonies.

2. *E. rubrum*, which I described in 1909, is characterised by the deep-red pigmentation on glucose-agar.

3. *Tricophyton nodoformans* is characterised by the fact that the surface growth is white and powdery, while the submerged portion is of a brick-red colour, which, however, disappears after repeated transplantations. It is interesting to note that each species gives rise to a slightly different type of dhobie itch. *E. cruris* causes the common festooned variety identical with eczema marginatum of Hebra. *E. rubrum* causes an eczematoid-like variety; the edge is less raised and is made up of numerous small, close-set papules covered at times by minute bloody crusts. It has a great tendency to spread from the scroto-inguinal region to any part of the body and may, in fact, begin on practically any region. *T. nodoformans* induces an eruption with a very thick nodular margin, and the fungus may attack the hair follicles.

One word as to prognosis and treatment. An apparent cure is quite easily achieved, but a true cure is much more difficult. In patients who had dhobie itch in the tropics and have settled in Europe the infection may last for very many years, remaining dormant in winter, but breaking out regularly every summer; the best treatment consists, in my experience, in a salicylic-sulphur ointment and in very obstinate cases chrysophanic acid may be used.

### *Tinea Imbricata.*

This dermatomycosis, which is extremely common and of great practical importance in certain tropical countries, was first described by Dampier in his book, "A Voyage Round the World," in 1789. In Alibert's "Atlas of Skin Diseases," published in 1832, there is a very good illustration depicting the disease. In 1874 Tilbury Fox gave a description of the complaint under the term Tokelau ringworm. He detected in scales a filamentous fungus and considered it to be identical with the fungus of European ringworm. From that time discussion began and continued for many years on the subject, whether the disease was a separate entity or merely European ringworm modified by the different climatic conditions. The great majority of the European authorities, who, however, had no personal experience of the malady, were opposed to considering the disease a separate one, while the medical men practising in the tropics generally believed it to be a different affection from ringworm. Very valuable researches were carried out by McGregor in 1870 and Coniger in 1871, but Manson's researches in China during the period 1879–82 are by far the most important. He described the eruption in a masterly manner, and first introduced the very appropriate name of tinea imbricata. Moreover, he gave a very good microscopical description of the fungus, although, as might be expected, using the technique of that time, he did not succeed in cultivating it. He considered it to be a non-cultivable trichophyton for which Blanchard suggested the name *T. concentricum*. In recent years the malady has been generally considered to be a form of aspergillosis, especially after the well-known researches of Tribondeau, Wehner, and many other observers. Tribondeau described fructifications somewhat similar to those of an aspergillus and created for the fungus the genus *Lepidophyton*. Wehner described it as a true aspergillus (*Aspergillus tokelau*). I investigated the malady in Ceylon, and I think I may venture to say that I succeeded in proving that these aspergillus-like fungi have nothing to do with the disease, and that when they are present in the scales, as they often are, are merely saprophytes or contaminations. By using a special technique I succeeded in growing the fungi which I consider to be the true causative agents of the affection. I created for them the genus *Endodermophyton*, of which there are at least four species:

FIG. 6.

Tinea imbricata.

(1) *E. indicum*, (2) *E. tropicale*, (3) *E. concentricum*, and (4) *E. mansoni*. The fungi belonging to the genus *Endodermophyton* by their growth between the superficial and deep layers of the epidermis, form an interlacing felt of mycelium, which detaches the cornual and granular layers from the rete Malpighi. They do not invade the hair follicles and do not cause suppuration. Their cultures are similar to those of the genus *Achorion*. The difficulty in growing such fungi artificially is explained by the fact that they do not grow on solid media direct from the scales. These, after being treated with alcohol from five to ten minutes, must be placed in glucose-broth tubes, one scale in each tube. Most of the tubes become contaminated with bacteria, but in those which remain clear after a time (five to ten days) a few delicate short mycelial filaments will be seen originating from the scales. The growth slowly increases until after a few weeks it takes the appearance of a small white fluffy mass with a dark spot (the scale) in the centre. The fungi can then be transplanted on solid sugar media, on which they then will grow quite well and from which they can be subcultivated indefinitely. The species may be differentiated as follows:—

(1) *E. indicum*—glucose-agar cultures, deep orange or pinkish or red; white duvet often present.

(2) *E. tropicale*—glucose-agar cultures, amber-coloured; duvet absent or present only in very slight amount.

(3) *E. concentricum*—glucose-agar cultures after some weeks become black.

(4) *E. mansoni*—black pigmentation very rapid.

By inoculating cultures of the first two species I have succeeded in experimentally reproducing the disease in volunteer natives.

As to the predisposing causes as regards age, in my experience young adults are mostly affected, but children and very old people may contract it. Men are much more frequently infected than women. It is doubtful whether there is any racial disposition. In Fiji it is said, however, that the immigrant Tongas rarely contract the malady, while the indigenous Fijians are extremely prone to it. Some authorities believe that this relative immunity is due to the habit the Tongas have of anointing their skin.

As regards climatological influences, Manson has made the interesting observation that tinea imbricata is rife especially in those tropical countries and districts in which the climatic conditions are favourable for the growth of the coco-nut tree. I can confirm Manson's observations. In Ceylon tinea imbricata is not very common, but the cases one sees generally come from the coco-nut districts. There is no doubt that a hot, moist, equable climate is the most suitable for the fungi of tinea imbricata, as it is the most suitable for the growth of the coco-nut tree.

### CLINICAL SYMPTOMS, DIAGNOSIS, AND PROGNOSIS OF TINEA IMBRICATA.

The development of the eruption is most interesting. At the very beginning one or several small roundish or oval dark-brown very small spots appear, generally on the arms, chest, or back. After a short time each brownish spot splits in the centre, and in this way a ring of flaky large scales attached at the periphery is formed; this scaly ring expands peripherally, and, while it does so, another brownish spot appears in the centre on the same site as the first brown spot; this new brown patch also breaks in the centre, and in this way a second ring scaly ring is formed, which expands towards the periphery inside the first ring; again in the centre a dark patch appears which splits, and a third ring is formed inside the second; and so on until a number of scaly rings develop. Sir Patrick Manson has aptly compared this development of concentric rings to the concentric ripples produced by a pebble thrown into a pool of water, and when the eruption starts from many points, as is often the case, owing to auto-inoculation, it is as if a shower of pebbles had fallen in the pond and many systems of spreading rings are produced which intersect each other. The scales are flaky, tissue-paper-like, large, up to half an inch in length, dry, and of a dirty-greyish or brownish colour. The fungus never invades the hair follicles nor, according to some authorities, the nails. I must say, however, that in my experience the nails are often affected, becoming discoloured and brittle, and this has also been Manson's experience. The eruption has not much effect on the general health of the patient, but the pruritus it induces is really terrible; the native patients refuse to do any work and remain in their compounds, where they can be seen squatting or lying down and scratching their bodies the whole day long. I have noticed that the itching is greatly increased by certain diets; for instance, the dry fish diet often given in Ceylon hospitals makes the pruritus absolutely unbearable.

The clinical picture of the disease is most characteristic, even when the eruption is of the diffuse type. The large, dry, tissue-paper-like scales, overlapping each other like tiles on a roof, are quite typical, but the diagnosis is certainly very difficult to the newly arrived European medical man, who may never have heard of the disease. On superficial examination the malady does not strike one as being of epiphytic origin, and the cases I generally had in the Colombo Clinic were often diagnosed by visitors—and naturally so—as cases of ichthyosis or of pityriasis rubra; it is, in fact, interesting to note that one of the many synonyms of this malady is "tropical ichthyosis." Of course, the microscopical examination of the scales will reveal the presence of an enormous number of mycelial filaments, and this will clear the diagnosis at once.

The disease, as I have already stated, has not at first a serious influence on the health of the patient, but the affection is chronic, and after a time the patient not rarely becomes anæmic, emaciated, and a nervous wreck owing to the continuous pruritus and loss of sleep. At any rate, the patient is not fit for any work, and this is of great practical importance, as it tends to decrease the labour force on low-country estates.

One word with regard to treatment. The disease never shows any tendency to spontaneous cure, and its treatment is most difficult, as every tropical practitioner knows. It is easy enough to obtain a temporary improvement and even a disappearance of the eruption; but as a rule a few days after discontinuing the treatment the eruption starts afresh.

In the Colombo Clinic I tried experimentally the most different drugs and ointments, and came to the conclusion that the best routine treatment is by resorcin dissolved in tr. benzoin. co. (resorcin ʒii, tr. benz. co. ad ʒi).

It is interesting to note that resorcin in ointment or in alcoholic solution has practically no action, and that tr. benzoin. co. alone has also practically no action, but when the resorcin is dissolved in the tincture good results are obtained.

---

**PORTSMOUTH MATERNITY HOSPITAL.**—A municipal maternity hospital was opened by the Mayor of Portsmouth on April 19th. A large and convenient house has been adapted for the purpose, providing accommodation for 12 patients. It is hoped eventually to have a much larger hospital. There is no intention of competing with existing nursing homes, as the new institution is for poor women who are unable to arrange for adequate help in their own homes. A fee of 30*s.* for a fortnight will be charged.

**PSYCHO-NEUROLOGICAL SOCIETY, LANCASTER-GATE, W.**—A clinical meeting was held on April 22nd, Dr. H. E. Davison being in the chair. The following cases were demonstrated. Dr. C. Worster-Drought: 1. Case of concussion of the spinal cord in the cervical region with Brown-Séquard syndrome and injury to the sixth and seventh left cervical nerve-roots. 2. Case of fracture-dislocation of the spine in the lower dorsal region with partial Brown-Séquard syndrome. 3. Case of proximal myopathy (Landouzy-Dejerine type). 4. Case of aphasia, agraphia, and alexia with right homonymous hemianopia in a man aged 30. 5. Case of early tabes dorsalis with double intention tremor. Dr. E. Danvers-Atkinson: Case of myotonia congenita. Dr. P. Bousfield: Case of motor aphasia and agraphia due to cerebral hæmorrhage in a young man.

# THE PELLAGRA OUTBREAK IN EGYPT.

## I.—PELLAGRA AMONG OTTOMAN PRISONERS OF WAR.

BY A. DOUGLAS BIGLAND, B.A. CANTAB., M.D. LIVERP., M.R.C.P. LOND.,

HONORARY PHYSICIAN, DAVID LEWIS NORTHERN HOSPITAL; LECTURER IN CLINICAL MEDICINE, UNIVERSITY OF LIVERPOOL; HON. CAPTAIN, R.A.M.C.

IN a previous paper[1] I have detailed certain remarkable features occurring in Egypt among Ottoman prisoners of war during the summer, autumn, and winter of 1916. The appearances then shown I correlated under the heading "War Œdema" in order to bring this outbreak into line with others of a similar nature described in Europe during the recent war, and in other parts of the world at different times. In the paper referred to I showed that a few of the war œdema cases eventually developed symptoms of pellagra, as did also a considerable number of other prisoners who had not come under previous observation. In the winter 1916–17 the number of pellagra cases was large enough to warrant the use of the term "epidemic." This epidemic forms the subject of the present paper.

### *Incidence and Clinical Features of Pellagra.*

Pellagra in this country is a comparatively rare disease. Small outbreaks have been described in asylums and similar institutions, while here and there in England and Scotland isolated cases have been described (Box,[2] Hammond,[3] Sambon,[4] and others). On the principle "whosoever hath not, from him shall be taken even that which he seemeth to have," the rarity of the disease increases its rarity because, contrary to what is usually taught, pellagra is extremely difficult to diagnose and often overlooked unless the possibility of its occurrence be kept in mind. It seems fitting, therefore, to increase the interest of this paper for English readers by the shortest possible outline of the disease as it is commonly seen.

Osler[5] defines pellagra as "a disorder of metabolism with periodical manifestations characterised by gastro-intestinal disturbances, skin lesions, and a tendency to changes in the nervous system." This disease was first described by Cazal in Spain about 1762. The name then given to it was Mal de la Rosa. In 1771 Frapolli, working in Italy, described the same condition under the name pellagra, or rough skin. Apparently pellagra first made its appearance in Europe about 1720, a date coinciding with that of the introduction of corn planting; this is a fact of some significance. Since then the disease has died out in some countries only to appear, or, perhaps, only to be recognised, in others. It is now prevalent in Italy, Roumania, and the neighbouring States. In Egypt Sandwith first reported cases in 1893, and it is now endemic in that country. In 1908 pellagra was first recognised in the Southern States of America as the same disease found in Italy. Stannus,[6] working in Nyasaland, reported cases there in 1910. And so the area of endemic pellagra grows, and it is more than probable that with increased knowledge of the disease this area will become still wider. As regards the prevalence of pellagra in the countries named above, suffice it to say, that "there are probably 100,000 cases in Italy and 50,000 in Roumania" (Osler[7]). Also that in the last three months of 1914, in one State alone of the U.S.A. (Mississippi) there were reported 1845 cases (Niles[8]). Naturally, in such countries pellagra has become of supreme importance from a public health point of view.

The chief clinical features of pellagra can be summarised as follows.

It occurs chiefly, though not entirely, in the poorer classes, and for the most part in rural districts. The disease begins in the spring or autumn, disappears after a short time, and reappears at a corresponding time the following year. This periodicity may show itself for many years in succession. Each attack tends to leave the patient in a worse condition than before. Finally, these cases drift into asylums, develop some organic disease of the spinal cord, or die during one of the attacks, either from cachexia or from some intercurrent disease. Of course, many cases may recover. The onset is characterised by general malaise with various morbid sensations referred to the digestive tract, soon followed by severe diarrhœa, often dysenteric in type, and most intractable. Other derangements of the tract, such as sore mouth and tongue, anorexia, and vomiting, are usually associated with the diarrhœa. The skin manifestations, without which the disease would never be recognised, soon make their appearance. The rash begins as an ordinary sunburn on the exposed parts of the body, especially the hands and face, and its distribution usually shows the most perfect symmetry. At the onset of the rash burning is complained of in the areas affected. Following the erythema appear marked pigmentation of the skin and desquamation. In some cases vesicles and even bullæ may arise, a condition to which the name "wet pellagra" is given, always a sign of grave import. Frequently the desquamating areas crack and deep fissuring of the surface may occur. After the attack is over the skin may return to normal, may hypertrophy, or may atrophy, leaving a condition resembling the skin of an old man in its papery texture and loss of elasticity.

Associated with the skin and gastro-intestinal troubles there is great weakness and emaciation, together with nervous symptoms, the most common of which are great depression of spirits and psychasthenia. An acute type of the disease is recognised, to which the term typhoid pellagra is applied.

With this brief account of the history and clinical features of the disease, we may now turn to the specific outbreak under consideration, leaving the ætiology of pellagra to be dealt with subsequently. The work is divided into two periods: (1) from September, 1916, to June, 1917, after which I was unfortunately unable to carry out further investigations; and (2) during the winter of 1917–18 and spring of 1918, which I have studied from notes given to me by my friend and colleague, Dr. J. I. Enright.

### *The First Period of the Outbreak.*

This comprises work done on 64 cases. Firstly, should be cited a few facts bearing upon the ætiology of pellagra, a discussion of these being left to the section dealing with causation.

*Race.*—Turks, 46; Arabs, 8; Kurds, 5; unknown, 5.

*Native place.*—Scattered all over Turkey in Europe and Asia, Palestine, &c.

*Average period of war service.*—About 3 years.

*Place of capture.*—The Hedjaz, 41; Canal Zone, 18; Dardanelles, 4; Mesopotamia, 1.

*Date of capture.*—The Hedjaz cases were all captured at the fall of the three towns, Mecca, Jedda, and Taif, about June and July, 1916. The Dardanelles prisoners were captured in 1915, while those in the Canal Zone were captured for the most part in and about El Arish and Katia also in the summer of 1916. It will be seen that the prisoners from the Dardanelles had been in our hands nearly two years.

*Disposal of prisoners after capture.*—Some of these came direct to No. 2 Prisoners of War Hospital, Cairo. Others were sent to one of the two big prison camps in the Cairo district—viz., Heliopolis and Maadi. Thirty-two cases were analysed as regards their disposal. Of these 14 were sent to Heliopolis Camp, 13 to Maadi camp, and 5 came direct to hospital.

*Incidence of pellagra.*—This point is extremely difficult to determine. I carried out many and somewhat

laborious inspections with a view to discovering, if possible, what percentage of Turkish prisoners at that time were pellagrins. Firstly I turned my attention to the camp at Heliopolis. Here I examined 3823 prisoners, of whom 24 were certainly pellagrins and 21 were doubtful. These inspections were performed in March, 1917. During the same month I visited the Red Crescent Hospital in Cairo. Here I examined 100 cases, of which not one showed any signs of pellagra. The Egyptian medical officer in charge told me that he had never seen a case in that hospital, though he admitted that during the summer of 1916 many cases had died of intractable diarrhœa.

In April, 1917, by the courtesy of the authorities, I was permitted to visit the Turkish women and children prisoners, numbering about 470. They had been captured in the Hedjaz during the summer of 1916 and all had suffered the horrors of siege. They ranged in social position from wives of superior officers to maidservants. I found no evidence of pellagra except that one case showed slightly suspicious signs.

It will be seen, therefore, that there were about 64 pellagrins in the winter 1916–17 out of some 4400 prisoners examined, a percentage of about 1·4.

The question whether this outbreak was merely a seasonal recurrence or the disease appearing for the first time is difficult to decide. In attempting to get a true history of his case from a Turk one feels almost sympathetic towards the gentlemen whose life-work it is to discover, if possible, the truth concerning our incomes. At best, in either case a good guess is the most that can be hoped for. In our country, too, a man's ignorance acts as a check upon his gift for telling lies, but with a Turk it is otherwise. Nevertheless, the statements of prisoners, in my opinion, are of some value when repeated cross-examinations are made at different times, and if when any discrepancies in the story arise the whole history is dismissed.

At the beginning of the outbreak I showed a few of the cases to one or two experienced observers, who gave it as their opinion that they were chronic pellagrins. Nevertheless, after examining many cases I am convinced that the majority were seen in their first attack. My reasons are as follows: (1) Out of the 64 cases 44 were positive that they had never had the condition before, 8 gave a doubtful history, 7 for one reason or another could give no history at all, while 5 were certain that they had had the condition once every year for some years. These statements were borne out by two Turkish officers and by an Armenian medical officer who had been attached to the Turkish Army. (2) All the cases had been soldiers engaged in an arduous campaign. Their average service was at least three years, some had been in the army seven years or longer, and chronic pellagrins could hardly support the strain of military life. (3) The fact that none of the women prisoners showed the disease, coupled with the fact that the disease is commoner in women than men, is very remarkable if pellagra had been endemic in the localities where they and the soldiers had lived. (4) The fact that two other epidemics occurred in Egypt during this war among communities that had not had the disease previously. I refer to the outbreaks at the Armenian Refugee Camp, Port Said, and at Cairo among German prisoners of war. (5) Chronic pellagrins usually show symptoms and signs pointing to organic disease of the nervous system. Organic nerve disease was extremely rare in this outbreak.

At this point I should like briefly to quote two cases, the first in favour of my view and the second one of the five cases which gave a clear history of previous attacks.

CASE 1.—Pte. S. K., 27 years of age. An Arab; previous occupation—butcher. Six years army service, all in the Hedjaz. Taken prisoner in Jedda, June, 1916. Three days after capture began to have diarrhœa, followed by malaria; admitted to hospital at Cairo August 8th, 1916, with malignant malaria and very severe anæmia. Marked œdema appeared, which lasted two months, and the patient nearly died. He gradually recovered and was discharged perfectly fit on Jan. 22nd, 1917. In February, 1917, I found the man at Heliopolis camp with a typical pellagrous rash on hands and face. This patient affirmed that he had never had the disease before, and a sergeant who had been in the same company with him for three years confirmed the story. This sergeant was chief Turkish orderly in the pellagra ward and, besides having a good knowledge of the disease, was an extremely intelligent man.

CASE 2.—Pte. H. A., 27 years of age. A Kurd; previous occupation—fellah. Three years service, all in the Hedjaz. This man states that he has had the same condition for the last eight years at this time of year. The condition lasts about two months, the attack beginning with itching of the skin and then the hands become a "blood-coloured red." After about seven days the skin fissures and cracks. Diarrhœa with blood and mucus is present at these times, also headache, night blindness, indigestion, pyrosis, nausea, and vomiting. This is a most perfect history of the disease, and he repeated it on more than one occasion without a slip. For eight years he had been getting thinner and weaker. This attack was the last, for he died on March 26th, 1917.

*The onset of the attack.*—Most of the cases had suffered from diarrhœa for a long period before the diagnosis of pellagra was made. It is only when the rash appears that the nature of the condition is made clear. The month of January, 1917, as the following table shows, was the most favourable time for the appearance of the rash.

| 1916 | | 1917 | | | | |
|---|---|---|---|---|---|---|
| Nov. | Dec. | Jan. | Feb. | March | April | Unknown. |
| 1 | 5 | 23 | 12 | 10 | 4 | 9 |

It may be interesting to note here the incidence of other diseases previous to the appearance of the rash. The figures are as follows: Malaria only, 1; dysentery only, 25; malaria and dysentery together, 8; neither malaria nor dysentery, 30.

*The gastro-intestinal system.*—The tongue in pellagra, as is well known, shows typical features, the edges and tip are bright red, while the papillæ stand out as little red dots. Later atrophy of the mucous membrane may occur. This condition was noted in 29 of the 64 cases. Burning in the mouth and especially in the œsophagus were common complaints, though the cause of the latter is obscure. The appetite was, as a rule, poor, but how much of this symptom was due to pellagra and how much to the extraordinary outlook of the Turk upon questions of disease and death it is impossible to say.

Diarrhœa, of course, was a prominent symptom, and it occurred constantly in the severe cases, usually with blood and mucus, though in the mild cases I was surprised to note its absence. Out of the 64 cases 24 had dysentery, 19 had diarrhœa without blood or mucus, and 21 had no diarrhœa at all.

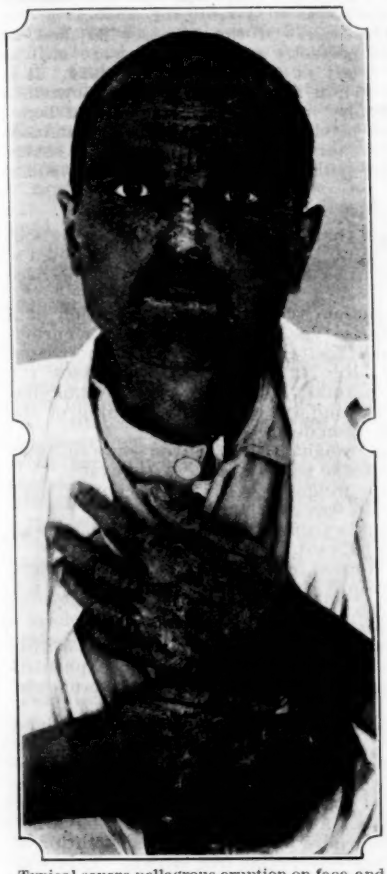
One very interesting feature remarked was the frequency of fæcal incontinence, the urine being held normally. This at first was accounted for by finding post mortem marked ulceration of the rectum extending even down to and involving the anal ring. That this is not the only explanation is proved by three cases, all showing incontinence, of which two showed normal intestines post mortem, while the third did not die and never had any blood in the motions.

Dr. Enright[9] has described a parotitis in pellagra. I noted only one case in my series and here the condition was unilateral.

Many observers have remarked how often pellagra is associated with intestinal parasites, especially the *Ankylostoma duodenale*. This parasite was never found in the post-mortem examinations, though always looked for, nor were its ova ever found in the stools. Dr. Manson-Bahr and myself made careful examinations of the stools in 39 cases in search of the ova of common parasites, our results being as follows: 28 nil, 2 lamblia cysts, 2 ascaris, 3 *Amœba coli* cysts, 1 *Tænia solium*, 2 *Trichocephalus dispar*, 1 *Oxyuris vermicularis*.

*Skin lesions.*—There can be no doubt but that the sun's rays play an important part in the production of the pellagra rash. This is evidenced by the frequency of the skin manifestations on the exposed areas, my figures for which are as follows: Out of the 64 cases 63 showed the rash on the hands, 30 on the feet (in the exposed part of the dorsum between the distal end of

FIG. 1.



Typical severe pellagrous eruption on face and hands. Notice the perfect symmetry of the rash and the fissuring of the hands.

FIG. 2.

To show desquamation of skin in pellagra.

the turned-up trouser and the proximal end of the Turkish slipper) (see Fig. 4), 22 on the face, 16 on the neck, 8 on the chest (where exposed), and 3 on the ears. Bilateral symmetry was usually perfect.

Though the sun's rays play an important part in the production of the rash, I was never able to make any skin changes appear at will, even after repeated trials with one arm bare or wearing a glove on one hand only. I cannot account for this failure. Pressure areas also show definite changes in the overlying skin, which becomes rough, thick, and deeply pigmented. The commonest situations for these changes are the external malleoli, sacrum, knees, and elbows. Thirty-five of the cases showed these signs, and they lasted long after all other typical appearances had disappeared. Many of the cases showed a curious fine branny desquamation over the body generally, even in those situations where no rash had been present. One case showed a pellagrous eruption on the scrotum—interesting because this was the site where Goldberger's artificially produced pellagrins first showed the rash.[10]

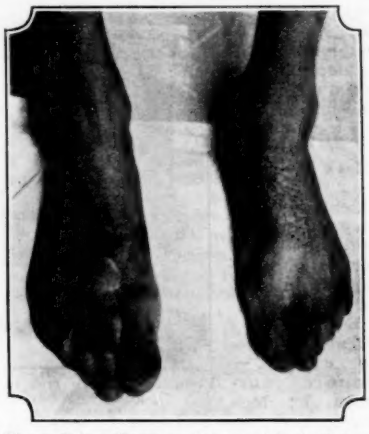
Lastly, under this heading I wish to describe a condition to which only one reference could be found (Marie[11]). In eight of the cases there was noted a peculiar seborrhœic condition, chiefly round the alæ nasi, sometimes scattered over the whole face (see Fig. 5). In appearance this condition was likened to small sulphur granules raised above the surface of the skin. This was not found among non-pellagrous Turks.

*Nervous system.*—Of the 64 cases 50 were subjected to a routine neurological examination. It was found that while hysterical stigmata were common, organic disease of the nervous system only occurred in 4 cases. One became demented; one developed delusional insanity; two showed evidence of pyramidal tract lesions, associated in one case with double optic neuritis going on to atrophy. No evidences of central neuritis were forthcoming. A slow lateral nystagmus was noted in a few cases, while night blindness was complained of only once. Various paræsthesiæ, together with tenderness in the muscles of the back and legs, were frequent.

FIG. 3.

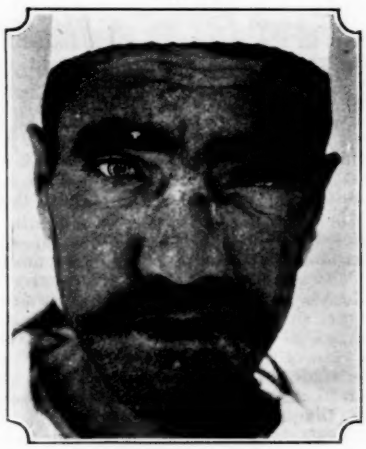
Showing more chronic stage of the rash—viz., pigmentation and thickening of the epidermis.

FIG. 4.



The rash in pellagra on dorsum of feet. Notice that the rash is only seen on the area exposed between distal end of trouser and proximal end of Turkish slipper.

FIG. 5.



Showing a somewhat rare skin change in pellagra—viz., seborrhœa of the face, especially round the nose.

Without doubt the most distinctive sign was a profound melancholy of a temporary nature associated with a mask-like face, and even sometimes with a Parkinsonian gait. Vertigo and sleeplessness were troublesome symptoms. Emaciation was very marked in the fatal cases (see Fig. 6).

FIG. 6.

Photograph taken post mortem to show the great emaciation in pellagra.

*Œdema occurring in pellagrins.*—From a study of the literature it appears that œdema in pellagra is a symptom of the greatest rarity. I can only find one reference bearing on the subject—Külz.[12] As will be seen, however, from the following extracts from my recent paper on war œdema,[1] this condition was quite common in the epidemic now under discussion.

*Incidence of œdema.*—Œdema observed, 36; œdema in history only, 7; no œdema observed or mentioned in history, 21.

*Extent of œdema in these 36 cases.*—General anasarca, 7; legs and feet, 29; legs and face, 0; legs and sacral region, 0.

*Time relation between onset of œdema and pellagrous rash.*—Total pellagrins with œdema, 43; œdema before rash, 24; synchronous with rash, 15; œdema after rash, 4.

*The blood in pellagra.*—Careful blood counts were made upon 25 cases: R.B.C. 1,500,000 and below, 2; R.B.C. up to 2,500,000, 2; R.B.C. up to 3,500,000, 9; R.B.C. above 3,500,000, 12. The absolute leucocyte count in the majority approximated to normal, but a relative lymphocytosis was present in some. Of the 25 cases, 17 had a lymphocytosis of over 30 per cent. and 10 over 40 per cent. The highest count was 60 per cent. Eosinophile cells were on the average 1·5 per cent., the highest count being 6 per cent. The colour index in 14 of the cases was normal, in 5 below 1, and in 6 higher than 1. For considerable help in the above counts I am indebted to Dr. Manson-Bahr.

*The urine in pellagra.*—No albumin, blood, sugar, or casts were found in 44 out of 46 cases examined. Indican was looked for in 37 cases. Two methods were used: (1) Calcium hypochlorite, (2) hydrochloric acid and chlorate of potash. In 24 the reaction was present but slight, in 5 it was marked, and in 4 it was absent. Variations were shown upon successive examinations. In view of the marked wasting I tried tests for acetone (both iodoform and nitro-prusside reactions) and diacetic acid (ferric chloride). Neither of these substances was ever found.

*Blood pressure.*—The resemblance of pellagra to Addison's disease suggested these examinations. In some of the cases very low readings were found, especially just before death. The lowest readings of systolic pressure in 3 moribund cases were 78, 80, and 86 respectively. Both the palpation and auscultatory methods were used.

*Progress of the cases.*—Of the 64 cases 26 died, 24 were discharged perfectly well, and 14 were still in hospital when I left at the end of June, 1914. It is interesting here to note that surgical cases with wounds show great difficulty in healing and fractured bones complicated with pellagra would not unite. So marked were these facts that after further experience severe limb injuries with pellagra were treated by immediate amputation.

### *Post-mortem Findings.*

Of the 26 cases that died post-mortem examinations were performed in 24. For 14 of these I am indebted to Dr. Manson-Bahr. The results can be briefly summarised as follows.

*Intestines.*—Nineteen showed severe ulceration of a bacillary dysenteric type. Three presented a curious condition of small, scattered submucous hæmorrhages throughout the large intestine. In two cases the intestines were normal. In none was the ankylostoma found and in none was there any thinning of the intestinal wall so often described.

*Liver.*—Average weight 41 oz. Seven showed fatty changes. In one there was a large hydatid cyst.

*Spleen.*—Average weight 9 oz. Eleven showed perisplenitis (in one this was cartilaginous).

*Kidneys.*—Normal except in three cases, which showed miliary abscesses (*B. coli*).

*Suprarenals.*—Normal in all but one case, where there was hæmorrhage into both organs: in this case each gland weighed ½ oz.

*Thyroid* and *pancreas* normal.

*Heart.*—Singularly small. Usual weight about 5–6 oz.

*Lungs.*—Hilum phthisis, 3 cases; advanced phthisis with cavity formation, 1 case; tuberculous bronchial glands, 2 cases; pneumonia, 2 cases.

*Brain and spinal cord.*—These organs were examined in 12 cases. Of these, 9 showed a peculiar brown pigmentation around the medulla, most marked on the anterior surface. Dr. Warnock, director of the asylum at Abbassia, stated that this curious condition is very common in pellagra. Another feature that I have not seen described elsewhere was a gelatinous condition of the choroid plexuses resembling frog spawn. This was noticed in three of the cases. In one case the brain was œdematous and in four the amount of cerebro-spinal fluid was increased.

Dr. Manson-Bahr examined microscopic sections of all the organs except the brain and spinal cord. Unfortunately, we had no facilities for neurological research at that time. The intestines showed the usual changes associated with bacillary dysentery, while the other organs appeared for the most part normal. Dr. Manson-Bahr reports that he found almost constantly in the suprarenals a fatty degeneration of the cortex.

### *Treatment.*

The therapeutics of pellagra is unfortunately very limited. In these cases I tried three lines of treatment.

(1) Arsenic, given in the form of Fowler's solution. The initial dose was 3 m. three times daily, increasing by 1 m. every other day up to 12 m. t.d.s. At this dosage all the 16 cases showed marked increase in diarrhœa. Two cases received 14 m. t.d.s., but they, too, then fell out owing to diarrhœa. An arsenic-free interval was ordered and then the treatment was begun again. This time, even when the dosage reached m. 4 t.d.s., diarrhœa became worse and the treatment was stopped. My experience was that arsenic is contra-indicated in the acute stages of the disease.

(2) On the assumption that there was suprarenal inadequacy in pellagra adrenalin was tried in the absence of preparations of the whole gland. Hypodermic injections of 5 m. of a 1/1000 solution were given t.d.s. My opinion is that benefit was derived from this drug in many of the cases.

(3) Finally, on the assumption that pellagra is a food deficiency disease a liberal increase in diet was tried without drugs. The ordinary hospital diet was altered to the following:—Breakfast: bread and milk (English

bread, milk 1 pint) with sugar, and one egg. At 10.30 A.M. one egg in ½ pint of milk. Dinner: Vegetable soup, lean meat or chicken (½–¾ lb.), rice and vegetables sometimes, potatoes, and English bread. Supper: Bread and milk (English bread, milk ½ pint) and sugar and one egg. At 8 P.M.: One egg in ½ pint of milk. Cheese with meals occasionally. I gave orders that these quantities might be exceeded, but that never less than 2 pints of milk, four eggs, and half to three-quarters of a pound of meat a day should be given. When severe diarrhœa was present the rice and vegetables were excluded, but not the soup; otherwise the diet remained the same. On May 1st, 1917, 10 bad cases of pellagra were placed on the above diet; 2 of these died, so 2 of the control cases were added. Observations of weight, the only sure criterion of progress in pellagra, were made at weekly intervals up to June 21st, 1917, when owing to illness I had to relinquish the work.

Leaving out of account the 2 cases which died, increase in weight was noted in 7 out of the 10 cases; 2 remained the same and 1 decreased by 19 lb. Of the 7 cases which gained weight the increase in seven weeks was as follows: 6 lb., 9 lb., 17 lb., 18 lb., 19 lb., 23 lb., 23 lb. Sixteen other cases were taken as controls; these were kept on the ordinary full diet of the hospital —viz., per diem: native bread, 937 g.; beef, 115 g.; vegetables, 120 g.; rice, 115 g.; milk, 200 g.; fat, 20 g.; sugar, 200 g.; salt, 15 g.; black pepper, 3 g.; onions, 20 g.; tomatoes, 10 g. Of these 16 cases, 7 were pellagrins, 9 were not. The 7 pellagrins showed slight changes only in weight except one, who gained 13 lb. in five weeks. The 9 non-pellagrins gained weight slightly on the average, the highest gain being 8 lb. It is clear, therefore, that the increase in diet was decidedly beneficial as a therapeutic measure.

### *Experimental Work.*

*Blood cultures.*—Seven cases of pellagra with the rash at its height were studied by Dr. Manson-Bahr and myself. The blood was collected in the usual way and cultivated according to the following five methods. (1) N.N.N. medium for protozoa (Manson)[13]; (2) glucose broth; (3) bile; (4) blood serum; (5) anaerobic. The results were disappointing. Most of the cultures remained sterile throughout, while others were obviously contaminated by the dust so difficult to avoid in the Egyptian climate in summer. No trace of Tizzoni's strepto-bacillus[14 15] was discovered, nor did we notice any abnormal fluorescene of the blood serum.[16]

*Examination of fæces for strepto-bacillus of Tizzoni.*—This author[14 15] states that if pellagrous stools are heated at 80° C. for one hour most of the organisms are destroyed and a strepto-bacillus can be isolated. Like most other observers (Perroncito[17] &c.), I could find no such micro-organism.

*Complement-fixation phenomena in pellagra.*—For this section I am again indebted to Dr. Manson-Bahr. Attempts have been made by Cesa-Biancha,[18] Ormsby,[19] and others to discover a reaction similar to the Wassermann test in syphilis. So far the results have been negative. Firstly, 11 pellagrous sera were examined by the Wassermann test for syphilis and all found completely negative. Next, various antigens were made from the organs of pellagrous post-mortems—viz., thyroid, suprarenal, liver, spleen, kidney. The antigens were prepared in different ways: (1) thyroid, 10 per cent. in 70 per cent. alcohol; (2) suprarenal, 5 per cent. in 70 per cent. alcohol; (3) spleen, 5 per cent. in 70 per cent. alcohol; (4) liver, 5 per cent. in 70 per cent. alcohol; (5) kidney, 5 per cent. in 70 per cent. alcohol. (Also varying strengths of these antigen solutions.) The antigens were prepared by macerating the organs and leaving them to dry in the sun in sterile Petri dishes. Then the alcohol was added and extraction allowed to go on for varying periods, usually about three days. Saline extracts were also made as follows: Immediately after death the organs were macerated in 5–6 times their volumes of normal saline plus 5 per cent. phenol. These were then left seven days in the incubator, being stirred repeatedly. Finally, the solutions were filtered into sterile test-tubes. Many experiments were made using these antigens upon the sera of pellagrins, but no complement-fixation was observed.

*Inoculation of rabbits with pellagrous sera.*—In 1914 Harris[20] stated that he had produced pellagra in a monkey by injecting a Berkefeld filtrate derived from human pellagrous organs. Lavinder, Francis, Grimm, and Lorenz[21] repeated the experiment on many monkeys with only one doubtfully positive result. Dearman[22] claimed that after injecting rabbits with pellagrous blood in nine days symptoms developed, and in 23 days erythema, desquamation, and pigmentation of the skin followed.

We attempted to repeat Dearman's experiments, though at that time his work was unknown to us. Eight rabbits were procured, but seven died before the work could be started. The remaining rabbit received four intravenous injections of 2 c.cm. of pellagrous serum at two-day intervals. No ill-effects were noted up to its death from foot rot.

*Diagnostic uses of maize extracts.*—Much work has been done on this subject, using extracts of good and bad maize. The results so far are contradictory (Ormsby,[19] Raubitschek,[23] Rondini,[24] Finita and Novello,[25] Cesa-Bianchi,[18] Volpino[26]). I procured large quantities of maize, but all my efforts to render it bad failed. Extracts from good maize were prepared, but unfortunately this part of the work remained uncompleted.

### *The Second Period of the Outbreak.*

For a description of this period I have used the notes which Dr. J. I. Enright has so kindly placed at my disposal. During this time 118 cases of pellagra were examined while in hospital. The great majority of them were Turks, six were Albanians, two Arabs, and one Greek. I was interested to find in reading over these notes records of two only of my old cases from the previous outbreak; both of these died. It is not my intention to give a detailed description of these cases, and I will only mention some of the more important features. Out of 118 cases:—

*Gastro-intestinal system.*—Diarrhœa with blood, 53; diarrhœa without blood, 33; no diarrhœa, 32.

*The rash.*—Hands, 114 (the remaining four cases had marked atrophy of the skin of the hands); face, 25; neck, 23; feet, 81; pressure areas, 30.

*Tongue* showed the usual changes in the majority of the cases.

*Nervous system.*—Apparently none of the cases showed signs of organic nerve disease.

*Œdema.*—The total number of cases showing this symptom was 38. The distribution was as follows: extremities, 32; anasarca, 11; serous cavities, 22.

*Urine.*—57 cases were examined. Albumin is noted as being present in considerable amount in 26 and in a trace only in 7.

*Blood.*—42 cases were examined both as regards absolute and differential counts. The results were practically the same as those found by other observers, except that the lymphocytosis was not so frequent or so high.

Besides the usual diseases common to a subtropical climate phthisis was noted as being present clinically in 17. The severity of this outbreak can readily be imagined when we see that 92 out of the 118 cases died.

#### *Post-mortems.*

Dr. Enright gave me notes of 32 post-mortem examinations from which I have extracted the following points:—

*Lungs.*—Phthisis, 10; pneumonia, 3; pleural effusion, 3; tuberculous bronchial glands, 2; bronchiectasis, 1 (with amyloid liver and spleen).

*Heart.*—Average weight 7 oz. Normal, except pericarditis, 2; mitral stenosis, 2.

*Spleen.*—Average weight 8 oz. (the largest 16 oz., the smallest 2 oz.; 8 showed perisplenitis).

*Liver.*—Average weight 40 oz.; fatty changes were noted in 13 and perihepatitis in 2.

*Kidneys.*—Normal, except for 3 which showed subacute nephritis and 1 which had tubercular lesions.

*Intestines.*—Dysenteric ulceration was present in 24 cases.

This concludes the second period. The next period is dealt with by the Pellagra Commission which investigated the disease among the prisoners of war from October, 1918, to December, 1918.

### *Remarks on the Causation of Pellagra.*

For some years I have thought that the only way to discover the cause of a disease like pellagra was to make, as it were, an armchair study of all the cases the world over. The question will then resolve itself into a review of the similarities and dissimilarities presented by the various outbreaks, with the hope that in the end the search may reveal a factor common to all.

Consider the following instances: a woman in the Orkney Isles, an Egyptian peasant, a small boy in London, a native in Nyasaland, a lunatic in one of our London asylums, a governess in a well-to-do family in the Southern States of America. All these cases suffer from pellagra. What is the common factor here? It cannot be colloidal silica in the water they drink (Alessandrini[27]). Is it the bite of a fly? (Sambon[28] and others). What fly, except the common house-fly, is found in all these places? If the house-fly be the cause, why is the disease so rare where the fly is so common? And so on through all the various ætiological theories we go, finding that none will fit all the cases except two: (1) that the disease is due to the absence of something, possibly in the diet; (2) that it is due to the presence of something, possibly a toxin.

A consideration of the present outbreak, together with the fact that the German prisoners of war in Egypt showed the disease, must also bring us to the same two conclusions. Here you have two armies fighting over the same ground, exposed to the same climate and privations, and coming of a very similar race, the British and the Germans. The Germans develop pellagra, while the British do not. Three possible differences exist: (1) That the Germans were fighting alongside the Turks, some of whom were pellagrous at the time. It must not be forgotten, however, that with our army was the Egyptian Labour Corps, and pellagra is endemic is Egypt. This difference, then, is excluded. (2) That the Germans were suffering from the absence of something, probably in the diet, which our army possessed. (3) The Germans came under the influence of a toxin not affecting our army.

### *The Three Grades of Pellagra.*

Before discussing these two possibilities, I wish to make clear two views which I hold regarding pellagra itself.

(1) It must not be thought that the disease is necessarily a clinical entity in the sense that it has one definite cause only in its production. It may be rather of the nature of a syndrome, for which more than one factor may be responsible. The lesson of beri-beri, however, teaches clearly that seemingly opposed views may in reality be one and the same. This disease at first was said to be due to eating polished rice. So it was. Others said it could not be due to eating rice, because those who did not eat rice were attacked by a similar disease. They also were right. The vitamine theory ultimately showed that both views were correct. Thus it may be with pellagra.

(2) The second point that I wish to emphasise is the extreme variability in the severity of the disease. This is acknowledged on all sides by saying the disease is mild, severe, &c. But I would point out there may be something more than this. I first realised that this was so after many discussions with Dr. W. H. Wilson, of the Physiological Department of the Kasr-el-Aini Medical School, Cairo. I wish to take this opportunity of thanking him for the insight he gave me into the ætiology of pellagra and to state that many of the views here put forward are due to his influence, as will be obvious from the Egyptian Pellagra Commission Report. After much thought upon Dr. Wilson's arguments I have come to the conclusion that pellagra is a syndome of three grades, with perhaps a different ætiology. Grade I. is exemplified by a small Egyptian gardener boy in the employ of Dr. Wilson. This boy developed pellagra and he was cured almost immediately by the simple device of adding one egg per diem to his diet. Contrast this with the sweetshop assistant who is allowed to eat sweets ad nauseam till she is cured of the craving. She develops glycosuria, which is immediately cured by stopping the excessive sugar intake. Grade II. is present when the pellagrin can be saved only by relentless over-feeding. The lost balance is regained and maintained in the same way as by carefully dieting an elderly diabetic we may prolong his life for many years. Grade III. is the stage when the balance is lost completely and nothing can re-establish it, as in the young diabetic. It is clear that these three grades of diabetes probably have a different ætiology. Is it possible that the same reasoning may be applied to the syndrome called pellagra?

With these possibilities in mind, let us discuss the two views concerning the ætiology of the disease.

### *Pellagra as a Deficiency Disease.*

Firstly, then, pellagra may be due to the absence of something in the diet. Strambio in 1786 began the maize theory of the disease, which has adherents to this day. It has certainly been shown that those who have never eaten maize contract pellagra, but numerous observers still fail to read the lesson of beri-beri. There is evidence to show that there is something lacking in the dietary of those eating maize, but it is not true to say that either good or bad maize is the cause of pellagra. What is the substance lacking in such a diet? The work of Goldberger[10] is of enormous importance in the answering of this question. He persuaded a squad of 11 convicts to subject themselves to a certain dietary for a given period with the reward of a free pardon. Goldberger then instituted a diet which in essence was lacking in fresh animal protein, with the result that within five months 6 of the 11 volunteers developed pellagra. Not content with this, Goldberger then performed the converse experiment. An orphanage was chosen in which every year pellagra made its appearance. The diet of the inmates was then largely increased, chiefly in respect of fresh animal protein, and in the following season the disease was practically absent. I can find no record of the after-history of the six pellagrous convicts, but it seems that they belonged to Grade I. of the disease. The orphans, however, may have been Grade II. cases.

Further evidence regarding diet deficiencies and pellagra is furnished by the interesting observations of Külz,[12] a German medical officer, who himself contracted the disease during the war while on service in Roumania. This officer states that the German bread contained 20 per cent. of maize, and this bread, he claims, was the cause of his illness. The first symptoms were referred to the digestive tract, then followed œdema of the legs, and, finally, a pellagrous eruption. He was then invalided home and was perfectly well in three weeks. However, every time he ate army bread the œdema again appeared, and he seems confident that had he continued to eat it pellagra also would have reappeared. The exact order of symptoms here depicted was that noted among the Turks—namely, first diarrhœa, then œdema, then the rash.

Was there any food deficiency among the Turks? For the dietetic facts here quoted I am indebted to the report of the Egyptian Pellagra Commission. In this report Dr. Wilson introduces a comparatively new idea to which the name "Biological Value of Protein" is given. It is well known that though, outwardly, vegetable and meat protein are similar, actually meat protein is very much more readily assimilated than the vegetable variety. It is this assimilability of protein which constitutes its biological value. Dr. Wilson reports that "Pellagra occurs or does not occur according as that value was less or more than 40 g. per diem." The pre-capture diets of the Turks on the Sinai front showed 30·4 as the biological value of the protein; in 1918, on the Palestine front, it fell to 21, and we may be sure that it was as low or even lower in the Hedjaz. The diets for labour prisoners showed a value of 48·7, amended later to 53·8, and for non-labour

prisoners 39·1, later amended to 44·6. The cases that I have described were non-labour prisoners and received the non-amended diet. The interned women prisoners' diet showed a biological value of 41·9, and it will be remembered that they did not contract pellagra.

It is clear, therefore, that the Turks before capture were suffering from food deficiency and that for some time after capture they were subject to a diet not very much better. This may account for the fact that some were pellagrous when captured and others developed the disease after capture. Even if it be asserted that all the prisoners were really chronic pellagrins, it appears that the diets supplied in our camps were not sufficient to inhibit recurrences.

Sufficient has been said to show that there is a definite connexion between food deficiency and pellagra. Sufficient also is the evidence that the Turks were subject to a food deficiency and that correcting this error caused great improvement in their condition. It only remains to draw the conclusion that the diet omissions were the cause of the disease.

This evidence is enough to account for the majority of pellagra outbreaks. But here and there cases arise which have been in no way subject to any food deficiency. Such an outbreak of pellagra has been recorded by Dr. Enright among German prisoners of war in Cairo after capture. These cases both before and after capture were very well fed, the biological protein value of the post-capture diet being at the beginning 49·4 and later being raised to 58·3. How can such cases be accounted for?

### *The Toxin Hypothesis.*

This brings me to the second supposition regarding the ætiology of pellagra—viz., the presence of some toxic substance. I would suggest that such a toxin is present in these cases, and that it acts upon the intestines or the contents thereof in such a way that protein is not assimilated as it ought to be. A man receives, for example, protein of biological value 58, but owing to toxin influences, the figure 30 may represent the amount actually assimilated. Accordingly he becomes pellagrous, not because there is an error in his diet, but because there is an error in himself. The end result is the same—protein starvation. In my opinion, therefore, cases of pellagra occurring amongst those who have always had good food and plenty of it, do *not* negative the theory that pellagra is a food-deficiency disease. Perhaps, also, there is some such ætiological difference in the three grades of the disease.

It only remains to discuss what is the nature of this hypothetical toxic substance. It must enter the body from without. It cannot be the result of a metabolic error, because the disease occurs in epidemics. It is difficult to imagine, for example, an epidemic of diabetes. It cannot be carried by the bite of an insect for reasons already stated. It has nothing to do with malaria or dysentery because pellagra was unknown in our troops who suffered from both diseases. It may be contained in ingested material, but, if it is, it must be something common to the whole world since cases occur in such different localities. Its probable habitat is the digestive tract, as evidenced by the gastro-intestinal symptoms which usually appear first, and the indicanuria, and by the fact that protein is found in the stools in abnormal amounts. It may be, however, that this toxic substance makes its effect by attacking the endocrine organs, especially the suprarenals. The similarities of pellagra to Addison's disease are too obvious to detail. The toxin is apparently of the nature of a virus, since the nervous changes show unmistakable evidence of degeneration rather than of inflammation. That this substance is not transmissible is shown by two facts: (1) That no attendant on pellagrins has ever contracted the disease; and (2) the heroic experiments of Goldberger,[29] in which fæces, urine, scales from the skin, and all manner of horrible matters arising from pellagrins were eaten by volunteers with no evil results, even after injections and inoculation on mucous surfaces.

### *Conclusion.*

**I claim that there is some evidence to show that pellagra is a syndrome which occurs most often in the under-fed, using the expression in its scientific sense, and sometimes in the well-fed. I have also tried to show how this syndrome may vary in character, according as the food deficiency is from without or from within. I state emphatically that just as perilobular cirrhosis of the liver may occur in those who have drunk spirits to excess and in those who have never had a drop of alcohol in their lives, due, as it is supposed, to some derangement of the intestine, so may pellagra occur in the under-fed and in the well-fed for a similar reason.**

**To show that I am fully aware of my presumption in trying to say anything new about pellagra, I will mention in conclusion a quotation which may be found in one of the late Dr. Sandwith's papers: "The field of pellagrous ætiology has been the playground of fledglings, whose intellectual judgment is befuddled because they have no real comprehension of the fundamental question, and therefore attempt to introduce into the ætiology of pellagra all sorts of things from bald banalities to the most wonderful fantasies."**

**My thanks are due to the authorities for the facilities they gave for this work, and especially would I mention again Dr. Manson-Bahr, whose energy and scientific devotion have inspired me to renewed efforts.**

*References.*

1. Bigland, A. D.: THE LANCET, 1920, i., 243.
2. Box, C. R.: Brit. Med. Jour., July 5th, 1913.
3. Hammond, J. A. B.: Brit. Med. Jour., July 5th, 1913.
4. Sambon, L. W.: Brit. Med. Jour., July 5th, 1913.
5. Osler, Sir W.: Principles and Practice of Medicine, 8th edit. 1918, p. 411.
6. Stannus, H. S.: Annual Medical Report on the Health and Sanitary Condition of the Nyasaland Protectorate for the Year ended March 31st, 1913.
7. Osler: Practice of Medicine, as above.
8. Niles, G. M.: Pellagra, 2nd edit., 1916, p. 31.
9. Enright, J. I.: Verbal communication.
10. Goldberger, J., and Wheeler, G. A.: Public Health Reports, U.S.A., November, 1915.
11. Marie, A., Lavinder, C. H., and Babcock, J. W.: Pellagra, 1910 Plate VIII.
12. Külz, L.: Arch. f. Schiffs- u. Trop.-Hyg., 1918, vol. xxii., No. 22-23.
13. Manson: Text-book of Tropical Diseases.
14. Tizzoni, G.: Rendic. Accad. d. Sc. d. Ist. di Bologna, 1907-08, xii.
15. Tizzoni, G.: Contribution bactériologique et expérimentale sur la Pellagra (Publication du Ministère de l'Agriculture, Rome, 1909). Among many other papers.
16. Hirschfelder, A. D.: Centralbl. f. Bakt., 1 Abt. orig., 1912, vol. lxvi., No. 7.
17. Perroncito, A.: Sperimentale, 1913, vol. lxvii., Suppl. to No. 4.
18. Cesa-Bianchi, D.: (1) Clinica Medica Italiana, 1914, vol. liii., No. 1. (2) Pathologica, 1914, vol. vi., No. 132.
19. Ormsby, O. S.: Jl. Cutaneous Diseases, 1912, vol. xxx., No. 10.
20. Harris, W. H.: Jl. Amer. Med. Assoc., 1913, vol. lx., No. 25.
21. Lavinder, C. H., Francis, E., Grimm, R. M., Lorenz, W. F. Jl. Amer. Med. Assoc., 1914, vol. lxiii., No. 13.
22. Dearman, W. A.: Southern Med. Jl., 1914, vol. vii., No. 7.
23. Raubitschek, H.: Deut. med. Wochenschr., 1912, vol. xxxviii. No. 46.
24. Rondini, P.: Lo Sperimentale, 1912, vol. lxvi., No. 5.
25. Finita, L., and Novello, F.: Pathologica, 1913, vol. v., No. 115.
26. Volpino, G.: Rivista Pellagrologica Ital., 1914, vol. xiv., No. 3.
27. Alessandrini, G., and Scala, A.: Policlinico, 1913, vol. xx., No. 23.
28. Sambon, L. W.: Brit. Med. Jour., 1905, pp. 1272-1275.
29. Goldberger, J.: Public Health Reports, U.S.A., 1916, No. 31.

**THE LATE Dr. W. ALLEN.**—William Allen, M.D., M.Ch. & L.M.R.U.I., who died recently at his residence, Derwent House, Shotley Bridge, aged 63, was a student of Queen's College, Galway, and a graduate and gold medalist of the University of Ireland. He qualified in 1877 and was for a time senior demonstrator of anatomy in the University of Glasgow. Some 36 years ago he went to Leadgate in Yorkshire, where he was medical superintendent of the infectious hospital and medical officer of health to the urban district council, as well as medical officer of health to the Benfield-side urban district council. Later he removed to Shotley Bridge, where he built up an extensive practice, and where he will be much missed.

# INTRA-CARDIAC PRESSURE AS A STANDARD IN CARDIOTHERAPY.

BY I. HARRIS, M.D.,
HONORARY PHYSICIAN, CARDIOGRAPHIC DEPARTMENT, DAVID LEWIS NORTHERN HOSPITAL, LIVERPOOL.

**IN spite of the progress in cardiology within recent years the treatment of heart disease is as unsatisfactory now as it was 20 or 30 years ago. What are the indications for the administration of any specific drug in the various forms of heart disease? How long should the use of that drug be continued? Which are the factors determining the exact dose of a drug to be prescribed? It is impossible to answer adequately these questions in the absence of a comprehensive principle from cardiotherapy on which we could rely as a guide. In this paper an attempt is made to determine whether by an application of exact methods to cardiotherapy it might not be possible to discover some principle which might act as basis for a more rational treatment of heart disease. The leading idea is to develop a standard by which the degree of abnormality in the cardiac mechanism can be gauged, and I shall attempt to prove that the intra-cardiac pressure supplies such a standard, not only for diagnostic but also for therapeutic purposes; for in determining the effect of a given drug on the intra-cardiac pressure, we shall at the same time be enabled to draw conclusions as regards its therapeutic effects on the cardiac disturbance.**

**It is clear that if an abnormal mechanism is to be corrected, it is desirable that the exact nature of its divergence from the normal should be known; it is equally clear that if a drug is to be prescribed for the purpose of remedying a defective mechanism it is necessary to ascertain the exact effects which such a drug exercises on that mechanism.**

### *Estimation of Intra-cardiac Pressure.*

**First of all we shall have to find out whether the intra-cardiac pressure can with some degree of certainty be determined. I propose the estimation of the intra-cardiac pressure by ascertaining the duration of the diastole in relation to the systole.**

The electrocardiograph offers an easy and accurate method of measuring the length of systole and diastole. It is assumed that a relatively long diastole in relation to a short systole signifies a high intra-cardiac pressure, since in a long diastole a large quantity of blood is permitted to be collected in the ventricles, which has to be expelled in a relatively short systole and therefore under higher pressure. It is true that the length of the diastole does not always stand in a definite relation to the quantity of blood which flows into the ventricles. Under increased venous pressure a relatively large quantity of blood will reach the ventricles, even if the diastole is of short duration. On the other hand, under the influence of digitalis the pressure in the jugular veins is so low that blood flows into the auricle at a slower rate. However, it is only in extreme cases where this factor is so considerable as to influence materially the relation between the length of the diastole and the quantity of blood which the ventricle receives. Moreover, there are two well-known facts which demonstrate conclusively that a long diastole strains the heart muscle to a greater extent than a short one. It is a general law in physics that the pressure in a fluid acts in all directions; therefore the tension caused by any given fluid on the walls of a closed vessel will increase with the diameter of the vessel. The total tension on the muscular walls of the heart will be greater the longer the diastole lasts. This is one fact. The other fact is concerned with the anatomical construction of the heart. With increased distension the walls of the heart become thinner, and the number of muscle fibres in a given area fewer, so that the longer the diastole the more strongly will each fibre have to contract in order to produce a given tension in the enclosed blood.[1] I think, therefore, we may safely assume, everything being equal, that the strain which the heart muscle has to bear during its systole will be proportionate to the length of the diastole. It is possible to some extent to supplement the data derived from the duration of the diastole in regard to the intra-cardiac pressure by measuring the pulse pressure.

### *The Two Types of Heart Failure.*

**I shall proceed now to ascertain the changes which heart failure produces on the intra-cardiac pressure, and will deal later on with the effects of some drugs on the tension of the heart chambers. We shall be then in a position to judge as to whether the knowledge gained from both could be usefully applied.**

Two factors are concerned in the production of heart failure: the condition of the heart muscle and the intra-cardiac pressure. A moderate intra-cardiac pressure acting on a damaged heart might suffice to produce heart failure. An abnormally high intra-cardiac pressure acting on a healthy muscle should, theoretically at any rate, also be able to induce heart failure. To remedy such an abnormal condition either of two courses is open to us: we may decrease the intra-cardiac pressure or we may strengthen the heart muscle.

All cases of heart failure do not present a common symptomatology. Heart failure must be divided into two distinct types, with a characteristic group of symptoms for each. One type is commonly met with in young people with a moderate degree of hypertrophy of the left ventricle, the arterial blood pressure, which is never unduly high with these patients, becoming lowered along with failing compensation; the heart is dilated and the pulse frequency high. Œdema is often present in this type of heart failure and easily amenable to treatment. Præcordial pain might be present, but of a type different from that of the pang of angina. Sudden death is an extremely rare occurrence in these types of deficient heart action. The most striking feature of this type of heart failure is the normal condition of the arteries and the peripheral circulatory apparatus in general.

The other type of heart failure is common in patients which show either pronounced hypertrophy of the left ventricle or sclerosis of the heart muscle with a high arterial blood pressure. Deficient compensation manifests itself often by an angina-like pain at the cardiac region. The arterial blood pressure does not fall even with the advent of general œdema. I have observed in some cases even an actual increase of blood pressure after the appearance of œdema. The latter is less common in these cases, but when present stubbornly resisting treatment. The pulse does not show any acceleration. Sudden death is of common occurrence in this type of heart failure. But the most striking feature in this form of failing heart is the sclerosis of the arteries and the general pathological condition of the peripheral circulatory apparatus.

### *Changes in Intra-cardiac Pressure in Heart Failure with Normal Arteries.*

**If we now examine the different phases of the heart beat in the first type of heart failure we find the most characteristic feature of the abnormal mechanism is a considerable shortening of the diastole. The length of diastole may be equal to or even less than the length of the systole. As the pulse becomes quicker the diastole becomes shorter and shorter, whilst the length of the systole remains nearly the same as in the normal condition.**

[1] Starling: Physiology.

However, as soon as a certain rate of acceleration is attained, the systole becomes suddenly shortened to a considerable degree, a kind of new rhythm sets in, with a somewhat altered relationship in the length of diastole to the systole, the duration of the diastole in relation to systole becoming somewhat longer, as was the case immediately before the sudden shortening of the systole. The intra-cardiac pressure in such cases must be very low, since, as we have already seen, the amount of blood contained in the ventricle at the beginning of the systole must bear some relation to the time available for the inflow of the blood from the veins into the heart. The low intra-cardiac pressure in this type of heart failure is significant. The symptomatology in this type of heart failure is in the nature of an adaptation, the rapid pulse acting as a safety-valve to obviate more serious consequences. As the heart muscle is unable to withstand a normal intra-cardiac pressure, the pressure falls so low that even a weak muscle is able to cope with the slight strain thrown on the heart during the systole. It is quite true the heart has to make up for the smallness of the output at each systole by an increased number of contractions during a given time. Sometimes, of course, the total output in rapid heart action does not compensate sufficiently for the smallness of the output of a single contraction, with the result that engorgement of veins and œdema make their appearance. These must be regarded as secondary effects of an otherwise beneficial process. We understand now why sudden death is uncommon in these cases. The more one surveys the symptomatology of a series of cases showing this type of heart failure, the more one observes the important part which this adaptation plays in heart disease. The one supreme aim of nature in these cases is apparently to prevent at all costs the undue straining of the diseased heart muscle, which would lead to fatal results.

There are a few additional facts. Cases with only a moderate degree of compensation react on work, as we all know, by a greater increase in the pulse-rate than the normal heart does in the same circumstances. The increased demand on the heart is met in the normal heart mainly by an increase in the force of the heart beat, whilst in the diseased heart the pulse-rate increases instead. The increase of force in the single beat would, of course, mean an increase in the cardiac pressure, which is to be avoided. On the other hand, cases which show the second type of heart failure do not react on work with the same rate of acceleration of the pulse.

The same adaptation is observable in cases where there is a permanently rapid heart action due to myocarditis. The arterial systolic pressure is quite normal in these cases, since the total output of the heart in a given time is normal. The diastole is extremely short in these cases, often even shorter than the systole; the pulse pressure is very low. Finally, we find the same adaptation in fevers, where the myocardium is not in a fit condition to resist the high intra-cardiac pressure. In these cases there is often a loudness of the first sound, which signifies, as it always does, an incompletely filled ventricle, and thus supplies additional evidence of the low state of pressure existing in the chambers of the heart.

In all these cases the heart is the primary organ to be affected; the condition of the arteries and the rest of the circulatory apparatus is either normal or only slightly affected. The protective adaptation develops in the interest of the central organ alone. The demands made on the heart by the various organs of the body are not complied with if these demands entail too great a strain on the heart muscle. Then œdema appears and the peripheral circulation is disturbed, the systolic pressure falls, and the work of the heart is actually less than normal. The heart is actually under less strain in this condition than normally. The adaptation in these cases is all in favour of the heart muscle. The feature which concerns us here mostly is the fact that the intra-cardiac pressure is very low in this type of heart failure. The object of treatment here cannot, therefore, be the reduction of the intra-cardiac pressure, but the strengthening of the heart muscle. Any drug which acts as a tonic of the heart, even if it raises the intra-cardiac pressure, would answer our purpose.

*Changes in Intra-cardiac Pressure in Heart Failure Associated with Arterio-sclerosis.*

**Let us observe now the mechanism of the second type of heart failure. The pulse-rate is not increased. The length of the systole in relation to the diastole remains the same as before the onset of heart failure, the intra-cardiac pressure remaining very high. The two factors which are immediately responsible for the heart failure have not altered. This is the reason why sudden death is so common in this type of heart disease.**

The clinical features of this type of heart are totally different from the foregoing one. The mechanism here, too, is an adaptation, but an adaptation of a different order. In cases which show the first type of heart failure the adaptation is entirely in the interest of the central organ. In the cases we are dealing with at the moment the adaptation is entirely in the interest of the peripheral circulation, which entails, however, effects reacting disadvantageously on the central organ. The chief characteristic of this type of heart disease is a disturbance in the peripheral circulation, sclerosis of the blood-vessels, and an increased arterial tension.

From the beginning the trouble which the circulatory apparatus had to contend with lay on the peripheral side of the circulation, and the adaptation accordingly developed in the interest of the latter. The high arterial pressure and the increase in force of the single beat are obviously beneficial arrangements to overcome an increased resistance in the peripheral circulation. They who depreciate the value of a high peripheral pressure should reflect for a moment on the causes which give rise to cardiac asthma. This is due to a fall of arterial pressure. The comparatively low pressure does not constitute a strong enough driving force to overcome the resistance in the sclerotic coronary arteries, which results in temporary weakness of the heart muscle. This is the reason why the attack takes place in the greatest number of cases at a time when the patient is at complete rest and the arterial pressure at its lowest.

**But to return to our main theme. We have seen that the pulse is slow, the arterial pressure high, becoming often higher with the appearance of general œdema. But perhaps the most striking feature of a typical case of this kind is the entire absence of jugular engorgement even when the general œdema is very much marked.**

In a case I have in mind general œdema was present for many weeks, and jugular engorgement was absent to the very last moment of life. Surely the absence of jugular engorgement could not be explained in a case so serious by the assumption that the right ventricle remained normal till the last. However, if we consider the duration of the diastole in relation to the systole we must really not expect any engorgement of the jugular vein, since a long diastole provides plenty of time and plenty of space for veins to empty themselves into the auricles. There can be no question of back pressure in their case, since the increase in the arterial pressure shows that the heart-action remained at least as powerful as ever. Now the generally accepted theory of the origin of œdema is backward pressure from the auricles, which causes engorgement and increased pressure in the veins, a theory which is quite compatible with all the clinical symptoms of the first type of heart failure. But how could the backward theory be made to account for the œdema of a case where the jugular vein is not engorged at all?

Still another feature came under my observation in connexion with this type of heart. It was a case of high systolic pressure, arterial sclerosis, nephritis, and aortic regurgitation. There was general œdema, but the systolic pressure remained high. I applied pressure on one of the veins on the dorsum of the hand by means of the Hooker apparatus. As soon as the pressure on

the vein reached a certain degree the distal end of the vein began to show marked pulsations; the latter have been powerful enough to lift the water in the manometer about a fourth of an inch. This will give us some indication of the height of tension existing in the part of the circulation which lies between the arteries and this vein. All these facts make it probable that the course and origin of œdema is different in this type of heart disease from the type mentioned before. The œdema in these cases could not have originated from back pressure, but is more likely to have been caused by forward pressure—that means, of course, if undue pressure in any part of the circulation is the cause of œdema at all.

**We have seen before that the appearance of œdema in cases which show the first type of heart failure actually lessens the total output of the heart and the strain of the heart is correspondingly diminished. Here, however, the œdema does not lessen the output of the heart. The adaptation in the interest of the peripheral circulation continues, and since the peripheral resistance has increased, the arterial pressure correspondingly increases in height. Increase in arterial pressure not followed by increase of the pulse-rate means increase in force of the single beat. Increase in force of a single beat means a greater intra-cardiac pressure.**

**What we are concerned with here mostly is the fact that the increase in tension in the rigid and sclerotic chamber of heart continues, even when symptoms of heart failure manifest themselves. The indication for treatment is obviously here to administer such drugs as should lower the intra-cardiac pressure and at the same time interfere as little as possible with the peripheral pressure.**

### *The Effect on Intra-cardiac Pressure of Certain Drugs.*

**I shall say a few words in regard to those drugs which are in frequent use in the treatment of heart disease, and indicate the effect they exercise on the intra-cardiac pressure.**

*Digitalis* in larger doses delays conductivity, produces double rhythm, an inverted T, and an electro-cardiac depression at the height of the systole. The appearance of one of these signs might be an indication to discontinue the drug in almost all forms of heart disease. Digitalis administered in small doses increases slightly the systole, whilst considerably prolonging the diastole, at the same time the intra-cardiac pressure is not much altered. Digitalis administered in medium doses will actually decrease somewhat the length of the systole and prolong slightly the diastole, the pulse frequency remaining unaltered. Digitalis in large doses decreases both the systole and diastole, the latter to a lesser extent. Medium doses of digitalis increase the intra-cardiac pressure, whilst large doses lower it considerably.[2]

*Strychnine.*—After enjoying great popularity this drug has been in disrepute within recent years. I am not in possession of any records taken from the patient immediately after the administration of strychnine. The greatest part of my material on which the subsequent conclusions rest is derived from the out-patient departments of the Northern Hospital. A few records are from my private electro-cardiograph practice.

The following table is a characteristic record of the effect of strychnine on the pulse frequency.

| | *Lengths of Pulse in Seconds.* |
|---|---|
| Before the administration of strychnine | ·74, ·68, ·72, ·76, ·68, ·68, ·68, ·68, ·68, ·68, ·68, ·68. |
| A week after the continuous administration of m v. strychnine thrice daily | ·72, ·72, ·76, ·72, ·74, ·74, ·72, ·76, ·68. |
| A fortnight after the continuous administration of strychnine | ·80, ·82, ·84, ·83, ·83. |
| A fortnight after the discontinuance of strychnine | ·76, ·76, ·76, ·76, ·76, ·76. |

Strychnine also seems to have a favourable influence on the irregular heart action. Before the administration of strychnine 40 beats showed 19 premature beats; a week after the administration of strychnine about the same number of beats showed 8 extrasystoles; the continuation of strychnine to another week had the effect of reducing the number of extrasystoles to 3. As the same phenomenon has been often observed it cannot be an accidental occurrence. Strychnine certainly does not lower the pulse frequency in every instance. But my record demonstrates that strychnine is capable of influencing the pulse frequency. It is important to note that strychnine never disturbs the relation of the different phases of the heart beat to each other, as is the case with digitalis.

*Caffeine.*—The chief characteristic of caffeine cardio-electrographically is the effect it has on the shape of T, which becomes markedly pronounced under its influence. I do not know the meaning of this phenomenon. (An inverted T in some leads is certainly a pathological sign, so also is the entire absence of T.) A well-developed T is found in young people. In the majority of my cases caffeine affected the relative size of the diastole to the systole, the latter increasing to a slight extent in length. Caffeine accelerates the pulse frequency. Caffeine certainly does not decrease the arterial pressure. The same drug can frequently be seen to neutralise some of the electro-cardiac peculiarities produced by digitalis. It will accelerate conductivity, remove digitalis depression, and prevent the inversion of T.

*Camphor* shows similar effects in regard to T as caffeine.

In regard to *atropine* I have not much to say. In accelerating the pulse frequency it also effects a shortening of the diastole and a considerable fall in the intracardiac pressure.

### *Conclusions.*

**Let us now see what use we can make of the principles enunciated in this paper. It is clear digitalis is indicated in cases which show the first type of heart failure. The tonic virtues of digitalis will act on the heart muscle before the intra-cardiac pressure-raising properties of digitalis can have an effect on the heart. The exact doses of digitalis can be regulated by taking as guide the state of the intra-cardiac pressure, particulars of which I have given elsewhere. If we come to cases showing the second type of heart failure it is obvious digitalis in such cases is not indicated. Any drug which might increase the intra-cardiac pressure would only aggravate matters. The most pressing symptom calling for immediate interference is the high intra-cardiac pressure. The best thing is to imitate nature's cure of the first type of heart failure. The ideal treatment in such cases would be one which would lower the intra-cardiac pressure and at the same time leave the arterial pressure unaltered. The prolonged use of nitrites is contra-indicated in such cases because they lower the arterial pressure so much. Caffeine seems to have all the properties we require for treatment of such cases, since it lowers the intra-cardiac pressure and does not decrease arterial tension. Clinical evidence, too, seems to confirm the usefulness of this drug in such cases. Unfortunately, many patients cannot take caffeine for any length of time on account of the nervous excitability which this drug induces. We have to fall back on atropin. This drug, by increasing the pulse frequency, diminishes considerably the intra-cardiac pressure. It is a good plan to treat the patient alternately with caffeine and atropine. As soon as the pulse-rate is considerably increased the intra-cardiac pressure falls proportionately. Small doses of digitalis are useful now, the drug to be continued till there is evidence of a consider-**

[2] Harris: Quarterly Journal of Medicine, vol. xiii., No. 49, October, 1919.

able rise in intra-cardiac pressure. Digitalis benefits the heart muscle, even in rapid heart action. Atropin lowers the arterial blood pressure somewhat, but not to such extent as the nitrites.

The treatment of œdema by digitalis is contra-indicated in these cases, particularly as the dose required for this purpose would be a large one. Digitalis, of course, might lessen the œdema in such cases. But the cardiac pain, the great discomfort of the patient, and the danger of sudden death would increase under digitalis.

Puncturing of the lower extremities are useful and quite safe if the rules of asepsis are observed. I found adrenalin a most useful drug for removal of œdema in such cases. Adrenalin probably acts as a diuretic, and does not affect the intra-cardiac pressure. Where digitalis is indicated graphic methods will be able to guide us in respect to the exact doses of the drug it is safe to administer. Caffeine acts in many respects as an antidote to digitalis, and one is able to neutralise the objectionable features of the latter as manifested by electro-cardiographic signs, by countering digitalis with caffeine.

Such is a crude outline of the value of exact methods in cardiotherapy, which I hope is capable of development.

## TWO CASES OF INTRAMEDULLARY TUMOUR OF THE SPINAL CORD,

### WITH OPERATION.

BY ANTHONY FEILING, M.D. CANTAB., M.R.C.P. LOND.,

PHYSICIAN TO THE HOSPITAL FOR EPILEPSY AND PARALYSIS, MAIDA VALE; ASSISTANT PHYSICIAN TO THE METROPOLITAN HOSPITAL; CASUALTY PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

TUMOURS of the spinal cord or its membranes are sufficiently rare to arouse interest at any time, and more especially when they are of the intramedullary type—that is, arising in the substance of the spinal cord itself. At the present moment, when the wounds of war have added to our experience of neurological surgery, it seems the more appropriate to record these two cases of intramedullary tumour. The cases themselves, both in their clinical course and from the nature of the tumours, present many points of great interest to the neurologist. Frazier's recent text-book [1] affords the most complete bibliography on the subject of spinal tumours yet available. Out of the 330 cases of spinal tumour in which an operation was performed only 36 examples of intramedullary tumour were found (10·9 per cent.). In Schlesinger's report of 35,000 autopsies at Vienna 135 cases of spinal tumour were found, of which 20 (14·8 per cent.) were of the intramedullary type. Since the number of spinal tumours formed only 2·06 per cent. of the total number of tumours of all kinds it will readily be seen that the condition is a rare one. Intramedullary tumours more commonly take the form of an infiltrating growth of the cord, though the encapsuled forms have been described. Out of the 36 cases collected by Frazier where operation had been performed 9 were examples of glioma, and this is stated to be the most common form of growth. The first case here described is a case of psammoma of the cord, and is, I believe, the first of such to be recorded.

[1] Frazier: The Surgery of the Spine and Spinal Cord (with complete bibliography).

CASE 1.—J. W. P., male, aged 18, was admitted to the Hospital for Epilepsy and Paralysis, Maida Vale, on Feb. 2nd, 1919, under the care of the late Dr. Fearnsides, after whose death he passed into my charge. The history of the case was as follows. About eight years before he had begun to lose the use of his legs; the onset of this weakness was very gradual and had not been accompanied by any pain at all. From July, 1912, to July, 1913, he had been a patient in the wards of the National Hospital for the Paralysed and Epileptic, Queen-square. I was allowed to see the notes of the case, and found that diagnosis of spinal caries with compression of the cord had been made. From that time until he came under observation at the Hospital for Epilepsy and Paralysis, Maida Vale, the progress was steadily downhill, until he gradually became unable to walk at all. Severe flexor and adductor spasms of the legs became a troublesome symptom, but no pain beyond a somewhat vague and ill-localised discomfort in the mid-dorsal region had been felt. He had occasionally experienced a difficulty in passing water, but there had never been involuntary escape of urine. He stated, however, that he did not feel his urine passing. There had never been any loss of control over the rectum. There was nothing in the previous history worthy of mention. In July, 1919, when I first saw him, the condition was as follows. He was quite unable to walk without assistance. He complained of a dull aching pain referred to the midscapular region, and also of cramps in his legs. These latter were really severe flexor and adductor spasms of the legs and thighs, which not only caused great discomfort but actually prevented sleep, and, further, were a not unimportant contributory cause of his inability to walk. No physical signs of disease could be found in the eyes, cranial nerves or upper extremities. Examination of the thoracic and abdominal viscera was negative. Both upper and lower segments of the recti abdominis were paralysed, and the abdominal reflexes were absent. The legs were in a condition of extreme spastic paraplegia, and when he was lying quietly in bed were usually extended. Any attempts at voluntary movement, however, or any handling of the legs produced violent flexor and adductor spasms. Both knee-jerks and both ankle-jerks were much exaggerated, and ankle clonus was obtained in both legs. The plantar reflexes were extensor, and the extension of the toes was accompanied by a general flexion movement of the whole limb. There was a gross loss of sensation present, but this was not constant and was variable in extent. No absolute loss of light touch sensation could be demonstrated, nor any complete loss to pinprick, but there was a blunting to pinprick as high as the costal margin in the anterior axillary line on each side.

Appreciation of heat and cold was defective as high as the nipple line; but here the limits were even more inconstant and vague. On the right side there was a narrow band of hyperæsthesia at the level of the seventh dorsal segment of the cord. The sense of muscle pain was preserved in the legs and the vibration sense only slightly diminished. The spasticity and spasm prevented any useful testing of the sensations of the position and passive movements of the joints. Examination of the spinal column displayed two curvatures—a scoliosis in the dorsi-lumbar region and a kyphosis in the dorsal region. No definite local tenderness or rigidity could be found. From an X ray examination Dr. Gilbert Scott reported a slight curvature of the fourth, fifth, and sixth dorsal vertebræ and some loss of definition of these bodies. At this time there was no interference with the control of the bladder or rectum, except that the patient could not feel his urine passing. The Wassermann reaction in the blood was negative. The cerebro-spinal fluid was clear, reduced Fehling's solution normally, gave a negative test for globulin, contained no cells and no organisms, but gave a feeble but definitely positive Wassermann reaction. Diagnosis was naturally in doubt. I did not consider that the case was one of spinal caries, but thought rather that the cord was compressed either by some slowly-growing tumour or possibly by some localised inflammatory condition, with

perhaps an encysted collection of cerebro-spinal fluid. The absence of pain was a point against the diagnosis of extramedullary tumour, and the possibility of an intramedullary tumour was suggested but not maintained. No very material alteration in the patient's condition took place during the next six weeks, except a slight increase in the extent of the sensory loss. Thus, on August 18th the loss of sensation to pinprick extended to just below the nipples on the right side (dorsal 5) and on the left side to about two segments lower down. He now experienced occasional difficulty in passing urine.

Operation was suggested and agreed to by the patient and his parents. In advising this I was fully conscious that an exploratory laminectomy was really what was being proposed, and I recommended it as the only course which might lead to cure or improvement. I therefore asked my colleague, Mr. Blundell Bankart, to operate and explore the cord at the level of the fifth dorsal segment. On August 23rd he performed the operation of laminectomy, removing the spines and laminæ on the first, second, third, and fourth dorsal vertebræ. To our great disappointment no tumour or other abnormality was found, and a probe appeared to pass readily up and down the theca in all directions. The cord itself was not incised. The wound was therefore closed. Next day there were complete paraplegia and retention of urine. On the 28th signs of an acute cystitis appeared. By Sept. 1st there were fever and pyuria. The legs became quite flaccid, and all the reflexes were lost with the exception of a feeble extensor response in the great toes. He died on Sep. 12th. A post-mortem examination was made soon after death. Death was due to infection of the urinary tract with consequent toxæmia. Both kidneys showed a well-marked condition of pyelonephritis with the formation of small abscesses; the ureters contained pus and the mucous membrane of the bladder was swollen, hæmorrhagic, and in several places sloughing. The operation wound was clean and well healed. The spinal cord was removed intact and hardened for several days before being examined. There was no sign of spinal meningitis. Further examination then revealed the presence of a fusiform enlargement of the cord, occupying as far as could be determined the first three dorsal segments; it was quite firm and harder than the ordinary substance of the cord itself. The incision in the dura mater made at operation was just ½ inch below the lower extremity of the tumour. A good idea of the extent and appearance of the tumour may be gained by reference to the accompanying sketch. (Fig. 1.) The tumour itself lies entirely within the cord, and is not in any way attached to the meninges. It is oval in shape, about 1½ inches in length, strictly circumscribed, and of a peculiar greenish colour rather like that of chloroma. Dr. T. H. G. Shore examined it microscopically, and reported as follows:

FIG. 1.—Intramedullary tumour (psammoma) of the spinal cord found post mortem in Case 1.

"The tumour consists of spindle cells of short type, together with some rounded cells; in places the spindle cells can be seen arranged in whorls, but most of these groups have undergone degeneration to form the spherical gritty particles so apparent to the knife on macroscopic section. These gritty particles form the striking feature of the section. The whole structure is typical of a psammoma."

CASE 2.—H. H., male, aged 14, was admitted to the Hospital for Epilepsy and Paralysis, Maida Vale, on Sept. 26th, 1919, complaining of weakness of the legs. The history was as follows: Until 6 years old he seemed perfectly well, after which he appeared delicate and did not gain weight. For about the last four years he had been observed by his parents to be clumsy on his feet, but this disability had not prevented him from playing games, &c. About a year or 18 months previous to admission to hospital a slight curvature of the spine was noticed. About six weeks before admission a marked weakness of the legs appeared, which rapidly grew worse, so that he became unable to walk at all. He had had no pain. There had been no retention of urine and the control over the rectum was not affected. Beyond an attack of whooping-cough as a child he had had no previous illnesses of any importance and there was no family history of any nervous disease or of tuberculosis.

On examination on Sept. 30th the condition was as follows: Examination of the eyes, cranial nerves, and upper limbs showed no abnormality. There were no physical signs of disease in the heart or lungs except a few scattered râles in the lower lobe of the left lung. The spine showed a slight kyphosis in the mid-dorsal region and a slight scoliosis, with convexity to the right. There was no tenderness on percussion of the spines and no rigidity of the spinal column. No signs of disease were found in the abdomen. Both upper and lower segments of the recti abdominis were acting, but the abdominal reflexes were not obtained. The legs showed a condition of flaccid paraplegia, and were extended flat in the bed. There was no obvious atrophy. A certain amount of voluntary power was still present. In the left leg tolerably good flexion at the hip-joint was still possible, extension was less well performed, and adduction and abduction were very feeble. Flexion and extension at the left knee-joint were possible but weak; there was no voluntary movement at the ankle-joint or at the toe-joints. In the right leg feeble movements of flexion and extension of the hip-joint alone were present. Both knee-jerks and both ankle-jerks were lost. On stimulation of the sole of the foot no definite movements of the big toes were obtained, but a general flexion reflex of the whole limb could be produced on each side by any nocuous stimulus; the receptive field of this reflex extended from the hips downwards and really embraced the whole limb. No reflex was obtained in the contralateral limb. There was a great loss of sensation present. This is best appreciated by a reference to the accompanying chart. (Fig. 2.) Briefly all forms of sensation were lost below the hips, while sensation of light touch and temperature were lost as high as the umbilicus; on the right side there was a narrow band of hyperæsthesia at the level of the umbilicus; on the left side the sensory loss extended about one segment higher than on the right. Micturition was normal; the urine showed no abnormality.

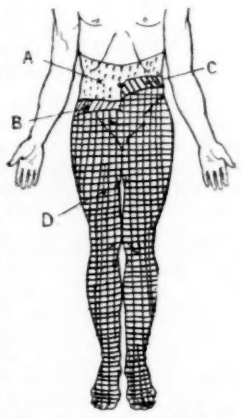



FIG. 2.—Chart showing loss of sensation in Case 2. A, Area of hyperæsthesia. B, Loss of touch sensation only. C, Loss of pinprick sensation. D, Loss of all forms of sensation.

X ray examination of the spine revealed no abnormality. The Wassermann reaction in the blood was negative. Lumbar puncture revealed a very interesting alteration in the cerebro-spinal fluid. Only a very small amount, about 1 c.cm., could be obtained; this was clear and of a beautiful golden-brown colour, with a peculiar iridescence. After centrifugalisation only five lymphocytes and one polymorphonuclear cell were seen. No cholesterin crystals were seen. The Wassermann reaction was negative. The small quantity precluded further chemical tests, but the fluid did not show the heavy spontaneous coagulum described as part of Froin's syndrome.

The progress was steadily for the worse. By Oct. 13th complete retention was present and catheterisation was necessary; no automatic action of the bladder was present, and dribbling took place. By the 27th the urine contained a trace of pus. On the 28th the following note was made. Eyes, cranial nerves, and upper extremities all normal. Complete paralysis of the right lower limb; in the left lower limb the following movements are possible: at the hip-joint slight flexion, slight adduction and abduction and slight rotation; at the knee-joint slight flexion only; at the ankle-joint slight flexion and extension. Very feeble power of movement of the left toes. The upper segments of the recti abdominis were acting. Mild flexor spasms of both lower limbs present. Some general wasting of the whole body, but more especially of the legs.

*Reflexes.*—Arm-jerks present and equal. Abdominals. The right epigastric reflex only obtained, and that sluggishly. Bulbocavernosus and anal reflexes present. Both knee-jerks and both ankle-jerks lost. Typical flexion reflex obtained by stimulation of the sole of the foot. No response obtained in the contralateral limb.

*Sensation.*—No pain in the lower limbs; a dull pain in the back at the level of the third lumbar spine. No vasomotor or trophic changes of any importance to record. Retention of urine present, with overflow only when the bladder is allowed to become distended. No appreciable change in the level of the sensory loss, except that there is now a wider area of hyperæsthesia above the level of the loss of sensation, extending to just above the costal margin on each side.

The diagnosis naturally presented considerable difficulty, but after consultation with my colleagues I finally decided that the most probable cause was a tumour of the cord, very likely of the intramedullary type, and operation was decided upon. The level of the tumour was judged to be the ninth dorsal segment of the cord, but with the lesson of Case 1 before us and bearing in mind the general tendency to place the tumour too low a wide exposure, going well above the level of sensory loss, was decided on. Accordingly, on Oct. 30th Mr. Blundell Bankart performed the operation of laminectomy and removed the spines and arches of the fourth, fifth, sixth, seventh, and eighth dorsal vertebræ. The bone and meninges were normal. The cord was slightly rotated and exhibited a fusiform swelling about 1½ inches in length, at the level of the sixth, seventh, and eighth dorsal spines. In colour the swelling was dark red and proved to be an intramedullary tumour, covered by a thin shell of normal cord substance. An incision about an inch in length was made in the long axis of the tumour and down the postero-median septum of the cord. Some old and recent blood escaped and a small amount of rather sticky gelatinous material, some of which was carefully preserved for microscopic section. The incision into the tumour was left open, as well as the lower part of the incision into the dura mater, with the idea that it might act as a decompression of the cord, and in the hopes that the tumour might possibly extrude itself, as occurred in a case reported by Elsberg. The wound in the muscles and skin was closed without drainage. The operation was well borne. Complete paraplegia, however, naturally ensued, and the patient complained of a good deal of pain in the back. The urine fortunately remained free from infection in spite of the continual catheterisation which was necessary.

On Nov. 11th, 12 days after the operation, the condition was as follows: Abdominal reflexes absent; neither upper nor lower segments of the recti abdominis acting. Complete paralysis of the right lower limb; some return of power in the left lower limb, consisting of feeble flexion of the hip and slight up-and-down movements of the toes. Both knee-jerks and both ankle-jerks absent. Stimulation of the soles of the feet gave a feeble and easily exhausted extensor response, with a well-marked flexion reflex. No appreciable alteration in the sensory loss appeared. There was retention of the urine, with overflow incontinence, if the bladder was not emptied by catheter. Loss of control of the rectum was present after an aperient. Slow but steady improvement took place, and on Dec. 1st it was noted that the voluntary power in the left leg had increased, and that a certain amount of automatic action of the bladder was established, the bladder evacuating itself when it contained about 3½ oz. of urine. No urinary infection was present. A microscopic examination of the piece of material removed from the spinal cord at the operation was made by Dr. R. G. Canti, who reported as follows: "Section shows the structure of a glioma. The growth is necrotic and is supplied with large blood spaces. There is no normal tissue present." At the time of writing the patient is still under observation in hospital. The condition is about the same as when he was first admitted—that is, he seems to have recovered from the effect of shock to the spinal cord, while, as might be expected from the nature of the tumour found, no real improvement has taken place in the paralysis.

### *Remarks.*

**The first point of interest in these two cases is the striking difference in the clinical course exhibited by them. This difference may, of course, be explained by the histological characters of the tumours. The first, that of the psammoma, is characterised by extreme chronicity, eight years' duration, and but for the unfortunate result of operative interference and urinary infection life might have been prolonged for a considerable time, albeit with complete paraplegia. The second, that of the glioma, is marked by a rapid onset of symptoms, practically complete paraplegia being attained in six weeks, though premonitory symptoms had been present for some time before. The absence of pain, or at any rate of any severe pain, is a second striking fact and forms a valuable point of differential diagnosis from the more common extramedullary tumours. The inconstancy of the sensory loss in Case 1 was a noticeable feature, and is perhaps a point of some value, since extramedullary tumours usually lead by compression of the cord to a definite segmental loss, though this may often be of the Brown-Séquard type. In neither of the cases was the typical picture of a complete transverse lesion of the cord produced. Even in Case 2, where the mass reflex was typically present, some motor power still remained and distinct differences between the relative power of certain muscle groups could be easily demonstrated. It is interesting to note that a curvature of the spine was present in both cases. This may, of course, be a mere coincidence, but in view of the well-known association of spinal curvatures with syringomyelia, which is essentially an intramedullary gliosis, it may possess some diagnostic value. The lamentable termination of Case 1 emphasises the greatest danger to which these patients are subject—infection of the urinary tract—and illustrates the importance of operating early where operation is indicated. For sepsis in the urinary tract greatly diminishes the chances of successful surgical interference. Laminectomy in experienced hands is not an operation which need produce much**

shock, and the actual risks are being rapidly reduced to very small proportions by increasing skill and knowledge. Hence a somewhat bolder policy may be expected in the future in dealing with the possibilities of operation in doubtful cases. Localisation on the level of the tumour of course calls for the greatest care, and it is well to bear in mind the almost universal experience that there is a tendency to place the tumour too low in cases where any doubt exists as to the exact level of the growth. This tendency was well exemplified in Case 1. Cases of intramedullary tumour of the cord where removal of the growth is possible are likely to be very few, though attempts at doing so have been recorded by Potel and Veadeau and by Elsberg; the latter advocates an incision being made into the cord in order that the tumour may extrude itself and a decompression of the cord be effected. Robinson has recorded a case of intramedullary tumour of the cord which survived for two years after operation. Whether such operations are justifiable is a fair question. And it must be confessed in the two cases here recorded that the results are not very encouraging. But it is important to remember that all experienced observers are agreed as to the impossibility of making an absolute diagnosis in all cases between an extra- and an intra-medullary tumour. And the hopeless outlook for these cases, if unrelieved by operation, renders operation a perfectly just and reasonable course, if only in the hope that the tumour may prove to be of the extramedullary type and of a nature capable of removal. In skilled hands the actual operative risks should be small. Such operations, however, should only be undertaken by those who have had special experience of this branch of surgery, and, it is hardly necessary to add, not before the possibilities of diagnostic error have as far as possible been excluded.

In conclusion, I wish to express my thanks to my colleagues at the Hospital for Epilepsy and Paralysis, Maida Vale, who saw the patients in consultation with me, and especially to Mr. Blundell Bankart, who operated in both cases. To the resident medical officer, Dr. F. J. Hampton, I am much indebted, particularly in Case 2, where the results, so far encouraging, have been in no small measure due to his constant care and attention.

# NOVOCAINE ANÆSTHESIA.

## SOME DISADVANTAGES FROM A SURGICAL STANDPOINT.

By G. H. C. ST. GEORGE GRIFFITHS, M.R.C.S., L.R.C.P. LOND.,

LATE SURGEON-LIEUTENANT, R.N.; ANÆSTHETIST AND SURGEON-LIEUTENANT "OPERATOR-IN-CHIEF" TO ROYAL NAVAL HOSPITAL, HASLAR.

IN writing these few personal observations I must apologise to the experts if any points mentioned seem to them elementary. No attempt has been made to describe details about injection or sterilisation of the solution used, as these and other equally important matters can be found in the larger text-books on the subject. In the following criticisms it might be thought that I am unfavourable to operating under local anæsthesia. The object of the criticisms is only to warn novices against the many avoidable pitfalls. I believe that some day, when "nerve blocking" is better understood, that any operation will be carried out under novocaine in order to avoid the always present risks of general anæsthesia. No one who witnessed the scores of resections for empyema at Haslar Hospital during the late scourge could doubt the brilliant future of local anæsthesia.

### *Preliminary Precautions: Strength of Injection.*

An exceedingly important detail from the surgeon's standpoint is the careful preparation of the novocaine solution previous to injection. As this is frequently dispensed by men unfamiliar with asepsis, the risk of possible sepsis in the wound after operation must be considered. A clean but "septic" glass stopper or bottle may result in many heart-burnings.

Another difficult and delicate subject that is apt to arise is the anæsthetist's surgical cleanliness. Anæsthetists can grow careless over their asepsis in administering subcutaneous injections. Granted that these two extremely important points are attended to, the mode of injection may now be briefly described.

The use of novocaine solution in 2 per cent. and 5 per cent. strengths is recommended by various authorities. In experiments at Haslar Hospital perfect anæsthesia was obtained with 0·5 per cent. solution of novocaine, and this strength was adopted as routine for all operations performed under local anæsthesia. Each ounce of the solution had 5–10 minims of adrenalin (1–1000) added to act as a hæmostatic. These local measures were supplemented by a hypodermic injection of scopolamine gr. 1/150 and omnopon gr. 1/6 about 15 minutes previous to making the incision. This was sufficient to make the patient dazed or extremely sleepy. Occasionally a larger dose might have been given with benefit. The advantage of administering the hypodermic of scopolamine and omnopon, especially in nervous and apprehensive patients, is indisputable.

### *Difficulties at Operation.*

To operate really successfully under novocaine requires more precision, neatness, and surgical skill than under general anæsthesia. A rough and clumsy operator could never succeed, except in frightening and giving considerable pain to his patient. Perhaps the most vital point to remember is the exact limits of the area of anæsthesia. For this the closest coöperation with the anæsthetist is essential to prevent the patient suffering unnecessarily. There are also certain characteristic minor difficulties which practice can alone render familiar. For instance, following the cutaneous incision, the underlying tissues never look normal owing to a peculiar œdematous and mucoid appearance of the fat and muscle. To this may be superadded an unnatural blanching of the same structures if adrenalin is used with the novocaine solution. These masking and deceptive appearances may result in anatomical errors being made until the operator is familiar with them.

Again, the non-relaxation of muscular tissue is bound to hamper the operator both in his speed and manipulations. In reference to speed, my average time for a Bassini's radical cure of hernia is 15 to 20 minutes, but is increased through the difficulties already mentioned to 25 to 30 minutes under local anæsthesia.

### *Special Post-operative Complications.*

These may be divided under two headings: (1) Local; (2) General.

1. *Local complications.*—In this group reactionary hæmorrhage must be mentioned. I met this complication in a small percentage of cases operated on, although the proportion was always higher than with general anæsthesia. The hæmorrhage was never alarming nor serious, but varied from an extensive ecchymosis of the skin around the incision to a fair-sized hæmatoma in the cellular planes. Reactionary hæmorrhage always occurred in novocaine anæsthesia to which adrenalin had been added, the hæmostatic properties of the adrenalin being so effective that it occluded temporarily even the smaller-named arteries and veins. The occlusion obviously was due to vaso-motor constriction, and not to thrombosis, as I have often seen the blanched gaping ends of the small arteries pulsating, but showing no vestige of clot in their lumina. Eventually the vaso-constriction passes off, with the liability to reactionary hæmorrhage from the smaller-named vessels unless

ligatured. There are two ways to prevent the possibility of this complication: firstly, to withhold the adrenalin altogether. This is certainly the safest method to avoid reactionary hæmorrhage. It is a curious fact that primary hæmorrhage in the incision is far freer with novocaine alone than with a general anæsthetic. The alternative remedy is to rub any probable sites of small-named vessels to promote hæmorrhage with a view to applying a ligature to each unruly point discovered.

Another phenomenon that appeared in practically all the cases operated on was a serous discharge from the incision. This usually ceased about the seventh or ninth day. In itself the discharge is unimportant as regards the future scar, except possibly when Michel's clips are used. In these wounds the cutaneous margins are approximated so closely that no serous exudation can escape. Serum collects in the field of the operation, and is further increased by osmosis from the neighbouring tissues by the salts of novocaine and adrenalin remaining in the tissues after operation. In time the tension produced along the line of clips results in the Michel's clips being torn out or displaced. The mechanical irritation produced, together with the fact that it is impossible to swab the incision with iodine owing to the presence of the steel clips, may result in sepsis of the wound at a later date. The palliative remedy of removing a clip or two does not enhance the beauty of the scar. It is far better not to use Michel's clips at all. The last local complication to be mentioned is the presence of intense pain in the site of the operation which comes on some hours after the operation.

2. *General complications.*—Alleged insomnia was so common among my patients that it was proverbial for each patient to state next morning that he had not slept a wink. The nursing staff had special orders to look out for insomnia, but the general rule was for patients to sleep for several hours the night after their visit to the theatre. Intense headaches were also noted in a few cases. Rather severe pain was often complained of in the lumbar region, especially with inguinal operations. The theatre table was usually blamed for this symptom, although localised nerve shock may explain this more accurately. Thirst as a symptom was frequently present during the actual operation, whereas flatulence appeared equally commonly on the following day.

Retention of urine was far commoner after novocaine anæsthesia than after similar operations performed under a general anæsthetic, the frequency of the retention depending partly on the roughness of the surgeon in handling the parts.

Reference must be made to chest complications. During the years 1918–19 there was quite a long series of cases with coughs and bronchitis at Haslar Hospital following general anæsthetics. It was partly to avoid chest phenomena that I adopted local anæsthesia so frequently. Whether the years mentioned were especially prone to coughs and colds I do not know; but the number of chest complications under novocaine anæsthesia were almost as great as those that followed general anæsthesia. An interesting but curious post-operative symptom was the appearance of a definite, but slight tint of jaundice in the conjunctivæ. The jaundice set in always on the second day after the operation and occurred in at least 30 per cent. of cases. It eventually disappeared at the end of the week. It never extended to the skin nor other mucous membranes. The fæces were of normal colour, whilst bile-pigments could never be found in the urine.

The pathology of the condition requires investigating as only two similar cases followed general anæsthesia.

### *Points in Relation to Special Operations.*

Lastly, there are two or three operations that require special mention. In performing radical cure for hernia no painful stimuli need be felt by the patient until the neck of the sac is reached. Any pulling on the neck almost always produces a momentary painful sensation for the patient. The pain is never unbearable, and can be greatly reduced by gentle handling. In operating for varicose veins it is doubtful whether the addition of adrenalin is a help to the operation. Comparatively large veins, even an internal saphena, are so reduced in size by vaso-constriction that some doubt may be expressed as to whether a small branch is being dealt with instead of the original vein to be operated on. For hæmorrhoids novocaine anæsthesia cannot always be relied upon to give perfect anæsthesia. To this must be added another handicap, the non-relaxation of the sphincter ani.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF PATHOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on April 20th, Professor W. BULLOCH, the President, being in the chair, when Dr. J. A. MURRAY demonstrated charts and sections of three New Growths from the Rabbit with which Autologous Transplantations had been carried out. The bearing of the results on the treatment of cancer was discussed.

Dr. W. W. C. TOPLEY read a paper on The Site of Formation of Antibodies, and Dr. H. LYON SMITH one on Direct Hæmolysis: a Test for Bacterial Toxins and for the Quantitative Estimation of Bacterial Vaccines.

#### *The Ætiology of Appendicular Concretions.*

Professor S. G. SHATTOCK made a communication in which he gave the results of the systematic examination of 25 concretions, the examination being carried out by delamination under water; the concretions had at no time been allowed to dry. When an arbitrary centre of the size of a hemp-seed was reached this was cracked in glycerine between a slide and cover glass, and studied microscopically. In no instance was any nucleus present, the centre being of the same kind as the rest, and consisting of the undigested residues of plant tissues. In two or three the number of stiff pericarpal hairs (like those in flour and oatmeal) was notable, but in no instance were they sufficient to constitute a nucleus after the manner of the oat-hair concretions sometimes met with in the colon. In no example were any particles of steel or of the enamel flaked from cooking utensils present. The absence of these was opposed, therefore, to the suggestions that had been put forward in regard to the ætiology of appendicitis in general—viz., that its increase was due to the introduction of enamelled ironware or of the milling of flour by means of the cylindrical rollers of steel now almost universally used. An examination of the contents of 100 appendices taken from subjects over 40 years of age, and of 25 from those between the ages of 15 and 25 dying from causes unconnected with the appendix, gave equally negative results in this respect. In a few of these small fæcal pellets were met with, which might be regarded as appendicular scybalæ. Such appeared at times to furnish the starting point of concretions. The ætiology of concretional formation, the speaker thought, resolved itself into neuromuscular faults of the appendix, a matter of much interest in regard to ectasia and constriction of the œsophagus, stomach, and intestine. The entry of fæcal material into the appendix was presumably helped by the contraction of the cæcum upon its contents, whereas the exit depended upon the appendix alone.

The factor of mechanical kink might be viewed as an exceptional one, since in concretional forms of appendicitis the organ retained its usual curvatures. As to roller-milled flour itself, the finest was passed between as many as 13 pairs of revolving steel cylinders; yet Professor Shattock had found that no inorganic iron could be chemically demonstrated in it. The skiagraphy of concretions after being taken out of the excised appendix, and not allowed to dry, or while still in the excised organ, the speaker found, gave results too variable to prove a negative in clinical application. If the deposition of calcium carbonate and phosphate in

the stercolith was at all pronounced, a laminated picture was equally so; but if little, the picture was so faint that such a concretion would certainly escape observation in the living body. If the appendix, again, happened to lie behind the cæcum the picture would be obscured by the contents of the latter.

## SECTION OF ELECTRO-THERAPEUTICS.

### THE MACKENZIE DAVIDSON MEMORIAL LECTURE.

A MEETING of this section of the Royal Society of Medicine, held on April 16th, was devoted to hearing the first lecture of the foundation established to perpetuate the memory of the late Sir James Mackenzie Davidson, delivered by Sir ERNEST RUTHERFORD, F.R.S. The chair was occupied by Dr. A. E. BARCLAY, the President of the section.

Sir Ernest Rutherford opened with a warm eulogy of the work done by Sir James Mackenzie Davidson, both in the direction of rendering the whole matter of radiology a subject of greater scientific precision and dependableness, and in elevating it to the position at which it has arrived as a much-requisitioned speciality. He said its followers had now arrived at a parting of the ways: the old haphazard methods, inseparable from a laborious emergence, would no longer suffice if real progress was to be made. Hitherto there had been no systematic teaching of the subject, but individual workers had surmounted the difficulties, and had acquired by much labour a working knowledge of the physical as well as the medical side. He referred with great satisfaction to the establishment by the University of Cambridge of a diploma in radiology and electrology, for which some 30 students in London had already entered. Until the scheme was well established it would be well, he thought, to institute instruction in the subject at two or three convenient centres. Lectures were now being given in London and Cambridge.

*The Effects of Radiation on Matter.*

The second part of the lecture was devoted to an exposition of Sir Ernest Rutherford's views on certain aspects of the effects of radiation on matter. The effects of X rays in various treatments were similar, in many respects, to those of the beta and gamma rays of radium, but in some cases radium was preferable on account of its ease of concentration on a particular region. The effects of X rays were probably not due to the rays themselves, but to the power possessed by the radiation to eject from matter electrons at a prodigious speed. Some years ago Mr. C. P. R. Wilson, of Cambridge, devised a method by which the trail or track of the ejected electrons could be traced and photographed, and the lecturer exhibited the technique. He compared it to the tracing of the track of a tornado by the path of destruction it left. To secure these remarkable pictures the rays were passed through a gas super-saturated with water vapour, and the electron-path was marked by a chain of minute water droplets. He considered that the rays possess the power of chemical dissociation of a fairly close chemical combination, like water; and that they also have the power of association or recombination, and he entered with attractive detail into his reasons for this view. The effects seen in water could safely be regarded as occurring in the human body when the rays were applied to it, except that the amplitude would be very much reduced, and not every part would be hit by the electrons. The main problem of radiology was to find out the conditions under which the rays passing into tissue would destroy the cells or the foreign organism, with the minimum of danger to healthy cells. Possibly the radiation might, in the case of a few organisms of disease, have the power of differentiating between the injurious cell and the healthy one; and he thought it ought not to be altogether impossible, by the introduction of certain salts or certain solutions into the patient, to produce chemical reactions which would not occur normally. Some such process seemed a condition of further definite advance in the therapeutic use of the rays. He hoped there would continue to be carried out earnest study of the subject, and that the coöperation between the physician, chemist, and physicist would be even more intimate than heretofore.

Cordial thanks were accorded to Sir Ernest Rutherford for his lecture, on the proposition of Sir ARCHIBALD REID, seconded by Dr. THURSTAN HOLLAND.

## SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

*Severe Gout.*

AT a meeting of this society on March 10th, Dr. GUELPA showed a case of very severe Gout on the way to recovery. The patient was a woman, aged 34, who had suffered from the disease for the last ten years. When she first consulted Dr. Guelpa last November she presented almost complete ankylosis of the hips and knees, less advanced ankylosis of the shoulders, elbows, and feet, and some limitation of movement of the vertebral joints. Both hands showed a dislocation inwards of phalanges on their metacarpals, and both wrists showed an ulnar semi-dislocation. In the right hand the dislocations were more marked than in the left. Owing to the advanced ankylosis of the hips and knees the patient was unable to sit down and could only walk with difficulty. The following treatment was adopted. The patient was purged for four days in succession, and during this time was deprived entirely of food. She was then given an almost exclusively meat diet for four days. In addition muscular exercises were ordered, consisting either in walking chiefly uphill or in mechanical exercises. A drink was prescribed containing five or six drops of phosphoric acid in a glass of boiled water. At the end of a month considerable improvement had taken place and the starvation period was then prolonged till the sixth day, and the purges were given every two days with a beneficial result. Photographs and skiagrams taken at the commencement of the treatment were shown to prove the gravity of the attack and the remarkable improvement produced by the treatment.

Dr. G. LEVEN also showed a case of Severe Gout which had been cured for ten years. The patient was a man, aged 63, who had suffered from gout from the age of 18 to 53, the attacks becoming worse each year and being complicated by angina pectoris and intercostal neuralgia. At the commencement of treatment in 1909 he had complete loss of power in both hands and feet and there was a large tophus in the left elbow. The weight was then 101·2 kg. An almost complete cure was effected by diet without any drugs in the course of two months. The weight was now 89 kg.

The Treatment of Oxyurids by Intestinal Irrigation of the Sulphurous Spring Water of Luchon was described by Dr. F. H. PELON, who alluded to the recent communication by Dr. Leven on the treatment of oxyurids by eau d'Enghien.[1] He attributed the beneficial action of the water to a slight extent to the sulphuretted hydrogen, and to a greater extent to the sulphites and sulphides, but mainly to the sulphur which was present in a natural state in the water. Although he regarded intestinal irrigation as the essential part of the treatment for oxyurids, he considered that ingestion of sulphurous water was also beneficial, as it had an undoubted action on the worms living in the small intestine, where fecundation took place.

Two cases of Fistula in Ano cured by Local Applications of Carbon Tetrachloride were reported by Dr. GOUBEAU, who said that the method might be tried with advantage before surgical intervention.—Dr. JACQUEMET and Dr. GOUBEAU enumerated the following therapeutic uses of carbon tetrachloride, which Dr. Jacquemet had studied since 1906: 1. In surgery, in which it was a first-class antiseptic. It could be used for preparing the surgeon's hands and field of operation in a solution of iodine 1 g., $CCl_4$ 100 c.cm. For protecting the surgeon's hands a solution of 1 g. of indiarubber in 40 c.cm. of the iodine solution was employed. It could also be used for keeping instruments and for the disinfection of infected wounds. 2. As a parasiticide. 3. In dermatology for the treatment of seborrhœa, pityriasis, acne vulgaris, and acne rosacea, either alone or with equal parts of xylol or ether.

Dr. CRESPIN and Mlle. ATHIAS read a paper on Autohæmotherapy in Anæmia. In cases where normal horse serum and other measures had failed the method had produced considerable improvement in 48 or even 24 hours with a moderate and sometimes a considerable increase of red cells and occasionally of the leucocytes. Only a small quantity of blood was required:—viz., 5-10 c.cm. in adults and 3-5 c.cm. in children. In most cases a single injection was sufficient and it was only exceptionally that a second or third was needed. In the case of anæmic infants whose blood could not be obtained, their mother's blood was injected. It was a remarkable fact that the injections were only successful when the mother was markedly anæmic, no results being obtained when she was plethoric. That was due to the fact

[1] THE LANCET, March 6th, p. 553.

that the blood of anæmic persons contained active hæmatopoietic substances, the power of which was probably exalted by passage into the subcutaneous tissue.

## LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this association was held at 11, Chandos-street, W., on April 20th, Dr. HELEN BOYLE in the chair.

Dr. LOUISA GARRETT ANDERSON, formerly chief surgeon at the Military Hospital, Endell-street, gave an account, illustrated by lantern slides, of the work at that hospital from 1915 to 1919. She stated that the surgical work fell into three groups: In 1915 to 1916 large numbers of head wounds were received, and fractured skulls, with every kind of complication, were treated; in 1916 and 1917 compound fractures of thigh were numerous; while in 1918 a fine series of penetrating wounds of joints—especially the knee-joint—were admitted. She emphasised the valuable results obtained by the use of bipp, which was first tried in 1916. It was used afterwards for a large number of cases of compound fracture, and always with the best results. It replaced other disinfectants. It minimised the ward work enormously, as cases which previously had been dressed twice or thrice daily were left undisturbed with bipp for a week or more. It apparently altered the prognosis of cases, and shortened the time of treatment in hospital. Over 26,000 men passed through the hopsital, and 7000 operations were performed; 300 beds were set aside for orthopædic cases. The speaker discussed the advance in the treatment of fractured thighs and wounds complicating joints. By disciples of Sir Robert Jones—notably Major M. Sinclair and Major J. Everidge—the treatment of these cases had been revolutionised. In 1914 a case of compound fracture of the femur was a source of infinite anxiety to the surgeon and great suffering to the patient; it meant dressings at frequent intervals, drainage-tubes, constant operations for the removal of sequestra, and, at the end of months of misery, a weak leg, considerably shortened, possibly with a stiff knee. The modern treatment of thorough preliminary investigation and cleaning, followed by the application of bipp to the wound, suspension on a net bed or a Balkan frame, a well-fitted Thomas splint, and early movements of the knee, was incomparably better. The evolution of technique for dealing with penetrative wounds of joints was equally striking. In 1918 it was not uncommon to regain a full, or almost full, range of joint mobility.

## CARDIFF MEDICAL SOCIETY.

A MEETING of this society was held on April 13th, when Dr. R. PRICHARD read an interesting note on some cases of Fourth Disease (Dukes) which had come under his notice.

Dr. JEFFREY JONES showed a patient with Nodules on the Legs, Hands, and Arms. The first symptoms had been œdema of the legs, followed by nodules, and later by a similar condition in the hands and arms. The patient was an Arab. Dr. Jones discussed the diagnosis and considered the following possibilities—syphilis, beri-beri, and leprosy. The Wassermann was negative, there was no anæsthesia, and there were no organisms on microscopical examination after removal of a nodule. The Lister Institute of Preventive Medicine reported it to be a "spindle-celled sarcoma of vascular origin."—During the discussion which followed, Dr. D. J. HARRIES suggested the possibility of Baghdad boil, and advised looking for Leishman-Donovan bodies. He stated that this condition may resemble a growth on section.

Mr. GEARY GRANT reported cases of Sarcoma of the Ulnar Nerve removed without ill-effect, and of Secondary Suture of the Ulnar Nerve. He also showed a skiagram from the case of a man suffering from a nodule fixed to the skull. Egg-shell crackling was present, the patient having been previously operated upon for sarcoma of the humerus.—During the discussion which followed it was generally agreed that the growth was from the meninges and that removal was not possible.

Mr. H. G. COOK showed a case of Sprengel's Shoulder and a specimen of Ureteral Calculus.

Mr. A. W. SHEEN showed a skiagram of a case of Sprengel's Shoulder and another of a Fractured Patella in a man who went on playing football for 20 minutes after the injury.

HUNTERIAN SOCIETY.—**At the annual general** meeting of this society held at the School of Oriental Languages (London Institution) on April 28th, the following were nominated by the council as Honorary Fellows: Sir Archibald Garrod, Sir W. Arbuthnot Lane, Sir George Newman.

# Reviews and Notices of Books.

## INDUSTRIAL MEDICINE AND SURGERY.

By H. E. MOCK, B.S., M.D. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 846. 42*s*.

THE habits and customs of society are so closely intertwined that changes affecting any part of the whole must influence the rest. The productive work of the world with a steady and increasing insistency is being gathered more and more within the walls of great industrial establishments; expensive and specialised plant increases in complexity year by year; even agriculture, the greatest of all industries, is rapidly becoming wholly dependent on factory-made machinery. Where the plant is, there are the workers gathered together in ever-increasing numbers; here they live that portion of their lives which makes them of economic value to the State; here they enjoy health or contract illness and sustain accidents which limit their usefulness. The questions for the medical profession to-day are: Does it know how this illness is contracted? Does it know how to reclaim the disabled to be again wage-earners? Does it know how life is lived within factory walls? We have in these columns previously pointed out the urgent need for industrial medical service, and declared that in this country we are falling behind in developing such a service.

Production is the urgent need of the moment; production depends on the health and activity of labour. Apart from labour itself, no portion of the community could do more to help than the medical profession if its industrial service were organised: first, for selecting workers for their work—for preventing a C 3 person from overstrain at a process needing A 1 labour, or an A 1 worker being wasted on a C 3 process; secondly, for maintaining in health and vigour those selected; and lastly, for returning to useful work those whose health or limbs are damaged in the battle of life. The need, as judged by news and by publications which reach us, seems to be appreciated more in America than in this country. Here attention has been concentrated on diseases peculiar to industry, such as lead poisoning, anthrax, and dust-phthisis; and there is a tendency to lose sight of the forest while paying attention to these few small and comparatively insignificant trees. Yet we are aware that great advances were set on foot by our Ministry of Munitions, and that we possess an Industrial Fatigue Research Board. We hope that our medical literature will soon show signs of industrial activity. Meanwhile, the pages of the *Anglo-American Journal of Industrial Hygiene* are chiefly occupied by American authors. Quite recently we drew our readers' attention to a Government report issued by Washington on the medical and surgical care of industrial workers,[1] and we have now before us a book in which the industrial position is plainly set forth by Dr. Mock, an industrial medical officer, who tells his own experience, both startling and convincing. He points out how the profession is ignorant of industrial work, its scope and possibilities: "Recognition of the relationship between conditions in industry and the health of the people will become more and more essential in the teaching of medicine in the future." All that the profession knows, all it can do, should be at the disposal of the worker. To-morrow the State may have to enforce it; to-day the privilege lies with the employers to ensure it, and the privilege carries with it economic gain and a contented personnel. Dr. Mock makes no claim he cannot support, and he gives figures which prove that through one branch of medical work alone—the careful examination of all applicants for work—after the cost of *entire* medical service was deducted, there accrued to the employer an annual profit of over a quarter of a million dollars through examining 118,900 applicants. After that all is profit: the improved health and greater efficiency; better time-

[1] The Studies of the Medical and Surgical Care of Industrial Workers, Public Health Bulletin, No. 99. 1919. Washington.

keeping; the elimination of septic injuries and lessened compensation; the increased output resulting from fitting round pegs into round holes; the sickness stayed by timely treatment; the accidents prevented by safety-first methods. Yet, again, the experience of a large railway corporation is quoted, who found that "the reduction in time lost due to immediate and competent medical care more than offsets the expense of this work." The wonder is that employers are so slow in developing and adopting this most paying proposition.

The doctor in the past has waited for the patient to come to him. More and more is preventive medicine, with its great vision of health, pointing out that the doctor must be brought to the patient before he is a patient. Certainly the surgeon must be brought to the injured instead of the injured to the surgeon. In battle this may be impossible; in industry only organisation is needed and a surgeon on the spot. "Preventive surgery is a direct outgrowth of human maintenance in industry." Industry provides the means by which the health of the community can be easily controlled in groups, the means by which the gospel of health and the prevention of disease can be disseminated in every home in the land. Neglect to use means by those who possess them, neglect to employ talents, always has its nemesis. If employers continue to neglect their opportunity now as they have done in the past, let them not blame others than themselves when remorseless fate under whatever guise dethrones them. Ignorance of the facts will be no excuse, for the facts are known. All have stood aghast at the casualties of war, but after giving chapter and verse for his conclusion, Dr. Mock writes: "It may be safe to assume that the total number of amputations suffered by men in Pennsylvania's army in the field of war will be considerably less than the total number of amputations suffered in Pennsylvania's industries over an equal period"; and this industrial "list of honour" is constantly with us, and extends beyond the field of surgery over the whole region of medicine.

Dr. Mock's book deviates, as he points out, from the usual character of a text-book; it sets forth the reasons for, and the practicability of, industrial medicine and surgery. He tells what can be done from experience of what has been done; and he tells how it has been done; how the lives and limbs of workers can be conserved; how those, who through daily strife are disabled or maimed in health can be reclaimed to comfort, contentment, and efficiency. At times he writes rather as the apostle of a new creed than as a scientific teacher; for the spirit of the pioneer is upon him, the spirit of one who has found a great productive land, and would have others follow where he has blazed the trail.

Dr. Mock is essentially an industrial surgeon. He feels the great need to industry of preventive surgery. He is at his best when telling of his own work and his own organisation. What could be more convincing than his advocacy of iodine as first-aid treatment for every abrasion or cut however slight, with absolute prohibition of washing or other manipulation, when supported by such figures as these:—

| — | 1912. | 1913. | 1914 | 1915 | 1916 |
|---|---|---|---|---|---|
| 1. Total number of accidents. | 2693 | 4970 | 5971 | 7760 | 7925 |
| 2. Total number of infections (95% hands). | 772 (28·6%) | 710 (14%) | 655 (10%) | 586 (7·5%) | 610 (7·6%) |
| 3. Infected cases where iodine was used in department and then reported at once to doctor. | No record. | 18 | 16 | 5 | 10 |
| 4. Infected cases where iodine was not used in department but reported at once. | ,, | 28 | 28 | 12 | 12 |
| 5. Infected cases where these rules were not observed. | ,, | 668 | 611 | 569 | 588 |

He has also devoted much attention to the tuberculosis employee, to his detection and treatment. Particular stress is laid on after-care for the arrested and apparently cured, who he maintains should not be recommended for farm-work, for which they are not physically fit, but should be returned to their own skilled industry through the medium of model factories attached to every State sanatorium. Six years ago in this country action on these lines was advocated; the war intervened; we still wait. Compensation, insurance, and medico-legal phases are dealt with on broad principles; excellent cases are given, and valuable instances are quoted. The author desires compensation extended. "It can be irrefutably assumed that if compensation was extended to include all sickness, as proposed in health insurance, it would not only advance industrial medicine, but all medical practices. In fact, a beneficent system of socialised medicine would rapidly ensue."

When, however, Dr. Mock turns aside to speak of industrial medicine, of ventilation, of feeding, dust hazards and poisons, he is less convincing. He writes rather as one who has got up his subject, and we frankly consider he would have done better to have called his book Industrial Surgery and omittted all else. The book is well planned, but could have been usefully shortened by eliminating repetition and avoiding a tendency to classify duties of officers and methods of procedure. Much of this reads like efforts at appearing precise where no real precision is attained—efforts which the author was evidently too busy to edit sternly. A valuable and comprehensive bibliography is given at the end, and this is followed by the one blot in the book—an imperfect index. We thank Dr. Mock for finding time to give us this book, and recommend it to all members of the profession (too few, we fear) who take an interest in the social aspect of their work. Readers of this book will see there is work in industry for the medical profession to do.

---

INDUSTRIAL NURSING.

By F. S. WRIGHT. New York: The Macmillan Company. 1919. Pp. 179. 6*s*. 6*d*.

EACH advance in modern medicine has been associated with a corresponding advance in the nursing profession. One European war coinciding with the discovery of anæsthetics led to the evolution of the trained hospital nurse. More recently personal application of preventive medicine brought into existence the health visitor. And now another great war which threw a searchlight on the conditions of industrial life has developed the position of the industrial nurse whose work is distinct from that of either of her predecessors. In this last case the nurse is forging ahead of the doctor, and is often installed in charge of the ambulance work at industrial establishments to which no medical officer has yet been appointed.

A book has been published in America by F. S. Wright, an industrial nurse, setting forth the importance and wide scope of the work. She states truly that "industry needs a good nurse with a knowledge of methods of social work in addition to familiarity with methods of public health nursing." The position is discussed from the point of view of small factories, and therefore much which in a full organisation belongs to welfare supervision is included, but nothing is referred to which an industrial nurse may not find herself having to face in daily work. First-aid for cases of accident and the ambulance-room work have been the prime movers in creating the industrial nurse; but, once established, her sphere of work immediately expands, for an industrial establishment is an ideal organisation through which to carry out preventive medicine for adults. Medical cases as well as injuries gather to the ambulance-room; early symptoms which represent the curable stages of disease are seen here. Four groups of cases come under observation—minor injuries and more serious injuries, minor sickness, and more acute illness. In order to deal with them friendly relations have to be established with foremen; and a first-aid ambulance corps has to be organised and taught the importance of non-interference. From this beginning education in health widens out; and education is required, for "we cannot move people along the road of progress one bit faster than they see the need of being moved." The work does not consist in meeting a series of great emergencies, "as in reality the spectacular seldom does and never should

happen"; it consists rather in searching out what "is wrong, either in the health or habits of the worker, in his work itself, or in his surroundings or associates." The processes in the factory must be understood, the home conditions of the employees must be studied. Coöperation must be established with outside agencies, medical practitioners, hospitals, dispensaries, charity organisations, health officers, creches and welfare centres, school medical officers, labour exchanges, religious bodies, lodging and boarding-house keepers. Health talks in the dinner hour; informal gatherings of nursing mothers; home visitation of the ailing; organisation of recreation; supervision of the canteen and starting domestic cookery classes, all come within a nurse's sphere of activity. Then there are careful records to be kept of accidents and illness, and investigations to be made from these records into causation and prevention. The condition of the sanitary accommodation is her care; the cloak-room provision and means for drying wet garments must be looked after; the equipment and use of the washing accommodation call for attention.

Each of these matters is discussed in practical detail in the book now under notice. Employers, and we include mine-owners, who have not appointed a nurse should read this book; it will be of value to the nurses whom they will forthwith engage. Factory medical officers will find therein much useful information. Industrial nurses already at work will obtain from it inspiration for furthering their daily activities and clear instruction as to the means to adopt.

---

### THE SOCIAL WORKER.

By C. R. ATTLEE, M.A. London: G. Bell and Sons, Ltd. 1920. Pp. 286. 6*s*.

THIS volume is the first of a series of handbooks on social service published under the ægis of the University of London Ratan Tata Department of Social Science and Administration. The volume before us forms an introduction to the series. As stated by the author in the preface, it is an attempt to show what are the qualifications and training desirable in the social worker. Beginning with the social reform movement of Robert Owen, the author makes a concise introductory survey of the field of social service from the early Victorian era down to the recent developments of the trade-unions, the coöperative societies, and the friendly societies. In so doing he justly points out that the rise of democracy has changed the outlook of the social worker. Formerly social work was done *for* the working classes, now it is or should be done *with* the working classes in a spirit of comradeship and not of superiority. The most valuable contribution to social service which this book makes is the insistence on a right point of view. The spirit of goodwill is the keynote of service.

In writing an introductory volume of this character it must be difficult to decide how much to include and how much to leave out. The author has, perhaps wisely, left out most of the detail, and has contented himself with a broad outline drawing. Modern researches into such problems as those of poverty, factory conditions, crime, and social psychology are barely touched upon. Doubtless they will be adequately dealt with in the later volumes of the series. We trust also that these later volumes will give us a subject-index which the present volume lacks.

We recommend the book to all students who are embarking on a course of study in social service. Its perusal may help to widen the horizon of medical practice.

---

### POPULAR CHEMICAL DICTIONARY.

By C. T. KINGZETT, F.I.C., F.C.S. London: Baillière, Tindall, and Cox. 1920. Pp. 368. 15*s*.

Mr. Kingzett's aim has been to produce a popular dictionary to serve as a general work of reference for practical chemists as well as for the larger body of the public who take an interest in the subjects and substances which he describes. Incidentally, the book is designed to be an advanced companion to a previous book entitled "Chemistry for Beginners and School Use." For the latter purpose it may be regarded as entirely successful. The verbal accuracy of the dictionary is remarkable; we have only been able to find the single word *Kieselguhr* incorrectly given. The author's claim to be a satisfying guide to those of the younger generation who are in search of knowledge is less convincing. He does little more than hint at the wider views of chemistry and physics revealed by such moderns as Curie, Rutherford, and Mackower. The illustrations in the book, all precisely and accurately rendered, depict files, tripods, flasks, wash bottles, and pieces of wire gauze, while the subject of catalysts is dismissed in half a page devoted chiefly to platinum-black, and the indestructibility of energy is mentioned without an explanation of its gradual degradation into its lowest form of heat. To the word salvarsan is added 606 in quotation marks, but the aspiring reader would like to learn the name of Ehrlich and to hear of the 605 compounds elaborately investigated before he made his great discovery. Altogether, the book as it stands may be described as a safe but unimaginative vade-mecum. We trust that in his next edition, which is certain to be soon required, the author will feel free to let himself go a little in the realms of chemical adventure. There is one trifling error of judgment, in that two proprietary articles, and two only, are named in the text.

---

### PULMONARY TUBERCULOSIS.

Second edition, revised and enlarged. By MAURICE FISHBERG, M.D., Clinical Professor of Medicine, New York University and Bellevue Hospital Medical College. Philadelphia and New York: Lea and Febiger. 1919. With 100 engravings and 25 plates. Pp. 744.

THE brevity of the interval between the appearance of the first and second editions of this book is the measure of its popularity. It is well deserved. Indeed, it would be difficult to find a more compact yet comprehensive review of the subject. It has not, however, been brought quite as much up to date as the year of publication demands. The author has, no doubt, been obliged to omit references to much recent work of doubtful value, but it is disappointing to find the names of Jacobæus, Brownlee, and Morriston Davies absent from the index of authors consulted. The subject of surgical operations for phthisis, for example, is dismissed in less than two pages. In his preface to this edition the author claims to have revised nearly every chapter and to have rewritten several. A comparison with the first and second edition shows that he has adopted the plan of printing in italics statements of cardinal importance.

New chapters on tuberculosis of the pleura and on pneumothorax have been added, and the differential diagnosis has been given more space than before. Several additional plates have been inserted, illustrating the pathology of the disease, and many of the radiographic plates have been replaced by new ones. The experience gained by the author between the publication of the first and second editions with reference to influenza and tuberculosis adds appreciably to the value of the present edition. His view in this matter appears to be that only the mortality, not the morbidity, of pulmonary tuberculosis has been increased by the recent successive waves of influenza, and he has not seen a single case of tuberculosis engendered by influenza. He possesses the courage of his convictions to a degree rare in the writers of text-books. In many matters he is dogmatic, but as his dogmatism is usually supported by well-sorted evidence it is excusable and even helpful. His verdict on such doubtful remedies as tuberculin is always incisive, and he refuses to be impressed by the volume and pretensions of the literature of any given remedy. He ridicules the complexity in which the administration of tuberculin has become involved, and he refers with a smile to the practice of some authors who use "logarithmic tables for their calculations, as if they were dealing with an exact science." In his opinion tuberculin is at present given chiefly for its psychic effect—a comment which may apply to other drugs prescribed for chronic maladies.

## MECHANICAL DENTISTRY.

A Practical Treatise on the Construction of the Various Kinds of Artificial Dentures. Seventh edition, revised. By CHARLES HUNTER. London: Crosby Lockwood and Son. 1920. With 102 illustrations. Pp. 266. 5s.

THIS book has been before the dental profession for many years, and has proved of great value to those engaged in acquiring the art of mechanical dentistry. It is a little disappointing to find that the present edition has not been brought up to date, but even with this defect it is still a most useful manual.

## JOURNALS.

*Parasitology.* Edited by GEORGE H. F. NUTTALL, F.R.S. Vol. XII., No. 2. March, 1920. C. F. Clay: Cambridge University Press. 15s. net; yearly subscription, £2 5s.—The number opens with a short note on Intestinal Helminths in Indians in Mesopotamia, by Charles L. Boulenger, who had the opportunity of examining the stools of 1180 individuals, chiefly dysentery cases. *Anchylostoma* and *Necator* are shown to be the commonest parasites (18·5 per cent.). The author calls attention to the fact that *Hymenolepis nana* is the commonest tapeworm met with in Indians, and that *Trichostrongylus* is a much commoner parasite in man than is generally supposed.—In the paper On some Nematode Parasites of the Zebra, the same author describes five species of nematodes, three of which are new (*Cylicostomum zebræ*, n.sp., *C. montgomeryi*, n.sp., and *Craterostomum tenuicauda*, gen. et sp.nn.). The author finds that the nematode parasites of the zebra consist of several species known in the domestic equines, as well as others which are only found in zebra.—In the article on a Parasitic Spiral Organism in the Stomach of the Cat, R. K. S. Lim describes a new spirochæte living in clusters within the lumina of numerous ducts and glands of an apparently normal cat's stomach. The organism, which morphologically resembles the genera *Spironema* and *Treponema*, is 4 to 8 $\mu$ long with regular closely-set spirals. They were not seen in any other part of the intestines except the very beginning of the duodenum, or in any other organ. The mode of infection remains unknown. Attempts at cultivation of this organism failed. A somewhat similar organism was previously found by Bell and Ruquet in the stomach of the dog.—The article, On a Filaria, *Loa papionis*, n.sp., parasitic in *Papio cynocephalus*, by C. H. Treadgold, deals with a new filaria found in the yellow baboon imported from the French Guinea to Paris. Of the 55 animals examined, only 13 were infected, of which 10 yielded the adult forms of parasite (*Loa papionis*), while 12 contained the larval stages (*Microloa papionis*). In one case neither ♂ ♂ nor larvæ were present. The host does not resent the presence of the parasites; at the autopsy the internal organs appeared healthy, and even in the most extensively infested animals a distinct degree of eosinophilia was never encountered. The adults (*Loa papionis*) were usually found in the subcutaneous tissues. In the peripheral circulation the larvæ are invariably present at night, being less numerous or absent in the daytime. Three specimens of *Loa papionis* were found to be infected by bacteria. The paper contains a good description and figures of adult and larval stages of this parasite, which is also morphologically compared to *Loa loa*.—The paper On Fahrenholz's purported New Species, Sub-species, and Varieties of Pediculus, by G. H. F. Nuttall, contains a very severe criticism of the methods usually employed in the description of Anoplura. According to the author, all the species of *Pediculus* described by Fahrenholz, which are derived from different races of man and monkey, are synonymous with *P. humanus*, races *capitis* and *corporis*. All the characters upon which are based Fahrenholz's descriptions are thoroughly examined and proved to be valueless, as they are usually met with in a single lot of *P. humanus*.—The article On the Two New Gregarines: *Allantocystis dasyhelei*, n.g., n.sp., and *Dendrorhynchus systeni*, n.g., n.sp., parasitic in the alimentary canal of the dipterous larvæ, *Dasyhelei obscura*, Winn., and *Systenus*, sp., by D. Keilin, contains a description of different stages of the above-mentioned gregarines. *All. dasyhelei* differs from all the other known gregarines in possessing elongated sausage-shaped cysts of about 140–150 $\mu$ long and only 20 $\mu$ wide.—The paper on Spermatogenesis in *Ixodes ricinus*, Linn., by E. Nordenskiöld, deals chiefly with the cytological changes in the spermatids whilst developing into the full-grown spermatozoa, the latter, in the ticks, being of very aberrant shape, differing considerably from the typical flagellate form.—Mallophaga from South African Birds, by G. A. H. Bedford, contains a description of *Neomenopon pteroclurus*, n.g., n.sp., taken from a sand-grouse in the Transvaal, and of *Machaerilæmus plocei*, n.sp., collected from a passerine bird in Pretoria.—The number is concluded with a short note on Body-lice under Summer Conditions in Mesopotamia, by P. A. Buxton. It contains an account of seasonal variation in the number of lice in Mesopotamia, where during summer months the lice are very scarce, and towards the end of November suddenly become numerous. As this increase in lousiness coincides with the re-issue of winter under-linen, which is stored through the summer in ordnance dumps, an erroneous supposition prevails among the sanitary officers that the lice survive the summer as eggs in the stored clothing. The author points out the incorrectness of this view, as it is well known that the duration of the egg period is very short.

*La Medicina Italiana.* Istituto Editoriale, Milan. L.2.50.—There seems to be an influx of new Italian medical journals lately, and the first issue of this monthly periodical came from the press at Milan last January, consisting of 78 pages. The entire front cover is taken up by a photographic reproduction of Professor Augusto Murri, of Bologna, of whom there is a eulogistic biographical notice from the pen of Professor Antonio Gnudi. The collaborators of the journal are very numerous, and include most of the well-known names in Italian medicine. The papers in the present issue contain: Disease and Individuality—a Diagnostic Formula, by Professor L. Zoja; The Diagnosis of Petechial Typhus, by M. Segale; The Relationship between Infection and Immunity, by Professor E. Centanni; and the Cultivation of Tissues in Vitro, by G. Levi. A large section is devoted to discussion of present-day medical topics and news.

*Il Mondo Medica.* Piazza St. Croce, Roma. L.1.50.—This monthly journal entered its second year on Jan. 1st, 1920, having changed its somewhat unwieldy large quarto for a crown octavo, with a new artistic and semi-allegorical cover containing a hand grasping a flaming torch surmounted by a shield bearing a reproduction of the historic wolf suckling the infants Romulus and Remus. The editor is Professor Michele Pietravalle, Parliamentary deputy. The January issue contains articles by Professor Fichera on a case of Friedreich's disease; by Dr. Gianturco on surgical lesions of the kidneys and urinary passages; by Professor Arena on cystinuria; by Dr. G. Poppi on adenoids. Compulsory insurance against illness is discussed in an editorial with the report of the Commission appointed to deal with this subject. It may be noted that while the Commission fully recognised that a complete system of reform should include orphan and lunatic asylums, the majority were of opinion that it was not suitable to attempt too large a measure of reform at first.

*L'Ospedale Maggiore.* Via Ospedale, Milan. L.1.—The size of this illustrated monthly review has been increased from a small post octavo to a small quarto of about 40 pages. The editors are Professor Icilio Boni and Professor Enrico Ronzani, with Avv. Mario Rolla as editorial secretary. In the July, 1919, issue there is an editorial on the condition and salaries of nurses in England, referring to the report on this subject by the committee of the College of Nursing; no independent comment, however, is made on it. In the last number which reached us there are articles on Diabetes, by G. Vigevani; on Pulmonary Cancer, by D. Cassarini; in the August number on Tuberculoma of the Optic Thalamus, by Ugo Botelli. The illustrations are not numerous but are distinctly good.

*Archivos Rio-Grandenses de Medicina.* Orgao da Sociedade de Medicina de Porto Alegre. Numero 1, January, 1920.—We have received the first number of the *Archives of Medicine of Rio-Grande*, the official organ of the Society of Medicine of Porto Alegre. The journal is intended to serve as a means of communication among members of the profession in the south of Brazil, and to stimulate discussion on topics of general medical interest. It is the aim of the editors to provide a medium for recording the results of research carried out in Rio-Grande, and to collect papers on clinical and pathological subjects which would otherwise remain unpublished. No very striking original work appears in the present number. Perhaps the most interesting contribution is a short article by Professor Roger on the Rôle of the Portal Vein in Pathology. The effects of ligature and obstruction of the vessel are discussed, and the author inclines to the view put forward by Le Play and Ameuille that cirrhosis of the liver is secondary to infection of the spleen.—In a paper on Toxic Effects following Arsenical Medication in Syphilis Dr. Ulysses de Nonohay advances the theory that adrenal insufficiency is responsible for many accidents. This insufficiency is said to be due either to the virus of syphilis or to the depressing effect of arsenic on the gland. The conditions for which the suprarenal is called to account are varied, since they include urticaria, œdema, hæmorrhages, lepto-meningitis, meningitis serosa, paralysis, blindness, syncope, and epileptiform convulsions.—The remainder of the journal is concerned mainly with detailed studies of clinical cases by various professors of the Porto Alegre clinic. Interspersed between them are notes on treatment, medical aphorisms from various sources, and an epitome of current medical literature.

# THE LANCET.

*LONDON: SATURDAY, MAY 1, 1920.*


## Hospital Principles.

THE announcement by the Minister of Health in the House of Commons on Wednesday of last week that he had given his consent to the establishment of a municipal hospital at Bradford may have created a flutter in the world of hospital administration, for it has been hailed by the daily press as a kite showing the direction of the wind in the high places where decisions are made. The decision certainly shows which way the wind is blowing in Bradford. But this was hardly in doubt before. The wind has for long blown from the bracing quarter of municipal administration in that great worsted emporium of 250,000 inhabitants. It is not the war or post-war conditions that have killed the voluntary system in Bradford. Its Royal Infirmary, an old and insufficient fabric, has long been inadequate for the needs of the city, but funds for rebuilding on a new and better site were coming in none too fast before the war. Since then the Poor-law hospital of St. Luke, itself standing better than the infirmary, has been much enlarged and ennobled as a military hospital. The total beds of both are needed, and urgently needed, for general medical and surgical cases. Here is a situation in which a municipality of advanced views, already accustomed to the support of medical institutions on a large scale out of local rates, was sure to intervene. Dr. ADDISON describes their scheme for the establishment of a municipal hospital as the one practicable method of providing the institutional accommodation necessary to meet the needs of the city. "I decided as I did because it was the only way of meeting the necessities of the case," were his actual words. The shouldering of the whole hygienic burden by citizens for citizens is the task chosen of its own free will by Bradford, and endorsed without question by the central authority with a wise acquiescence in the decision of local opinion.

While it would be hard to over-estimate the significance of Bradford's lead, it would be perverse to see in Dr. ADDISON'S attitude any change of policy in regard to voluntary hospitals elsewhere. No particular perspicuity is needed to guess that the Advisory Committee over which Lord DAWSON presides will be willing to suggest more power for local sanitary authorities in providing hospitals where such are needed and for coördinating the work of all the institutions lying within their borders. And it is equally certain that the Health Services Bill, when it is drafted, will provide the statutory powers for putting such recommendations into effect. But good faith and common sense alike will ensure the survival of any voluntary unit willing and able to take its place in the scheme. Regional survey must form the basis of coördination; there can be no talk of the creation of new units when sufficient material of all kinds, whether of bricks or hands or brains, cannot be had for love or money. And regional survey must take account not only of the community's needs in medical, surgical, and special beds per 1000 of the population, not only of the existence of trained personnel, the medical and nursing staffs and the great body of able lay administrators, but also of the local type of social service. A community trained by heredity to give of its superfluity in money or kind or personal effort will not be coerced into the penny-on-the-rates or the twopence-a-week-on-wages mould. Local habits of philanthropy are woven into the very fabric of society and cannot be unravelled without destroying the material. The ideal will be to secure, in the first place, that each area gets the hospital which it deserves, and local freedom of action will assuredly be sanctioned in so far as it results in the common good. Liberty can and will be retained under central guidance.

The cardinal principles justifying local autonomy are efficiency and avoidance of overlapping, and on these two things the Ministry of Health has insisted and remains adamant. In London, which always constitutes an exception, although an exception larger than most rules, it is agreed that there should be institutional coöperation, in return for which State-aid will have to be granted, and, for the present, on a large scale. The voluntary principle is as firmly rooted in London as the coöperative principle in the Midlands or the municipal principle in the north. To take a single example. Of the 200 infant welfare centres in London 154 are carried on by voluntary agencies, and although the focus of each is well defined its sphere of influence is often nebulous enough. The voluntary principle has many and conspicuous virtues and only one besetting sin, the deplorable failing of overlapping. Hardly any Government subsidy would be too large to offer as the price of reformation in this respect. The municipal principle never overlaps; on the contrary, it is apt to become the dog in the manger. The medical officer, who is a whole-time civil servant, jealously restrained from consultation with fellow-practitioners of his art, is too apt to lose contact with the larger professional view to the narrowing down of his outlook and interests. Research has as yet never blossomed as freely on the municipal soil. In these things there is a lesson for the wise and consolation for the faint-hearted. Medicine has obtained its greatest triumph in the foundation of a Ministry of Health and in making its voice effectively heard in the counsels of the nation. Let its disciples offer the twin fruits of efficiency and economic effort, and their gifts will not be spurned.

## Scientific Cardiotherapy.

THE application of exact methods to the clinical investigation of disorders of the circulatory system has greatly enriched our knowledge of both the physiology and pathology of the circulation, and in consequence the diagnosis of cardiac disease has been rendered more exact and more rational. We publish on p. 954 of this issue of THE LANCET an interesting paper by Dr. I. HARRIS, in which an attempt is made to apply the increased knowledge thus acquired to the problems of the treatment of heart disease. Dr. HARRIS commences his article with the rather striking statement that, "in spite of the progress in cardiology within recent years the treatment of heart disease is as unsatisfactory now as it was 20 or 30 years ago." Many of our readers may not be prepared to subscribe to such a sweeping statement, since the recognition of the value of large doses of digitalis in the treatment of auricular fibrillation is alone sufficient to render it an exaggeration. At the same time a careful perusal of Dr. HARRIS'S suggestive article would seem to show the need for a careful examination of the modes of action of the various drugs used in diseases of the heart and vessels in the light of the newer knowledge of these conditions if we are to obtain the maximum benefit from their use. It is important to recognise that there are two distinct aspects of the circulation to consider both in health and disease—namely, the purely physical or hydrodynamic and the strictly physiological or vital. The physical conditions involve the consideration of the pressures in the different parts of the circulatory mechanism, the amount of input into the cavities of the heart at each diastole, and the actual force of systole. The vital aspects of circulatory problems concern the rate of the heart's beat, the time relations of systole and diastole, and the adaptation and adjustment of the blood flow to the needs of the organs and to varying conditions. In his search for some rational and scientific basis on which to assess the value of drugs in cardiac disease and to provide criteria or standards for their effective use, Dr. HARRIS has selected the intracardiac pressure as the most suitable means. He points out that the electrocardiograph offers an easy and accurate method for measuring the lengths or duration of systole and diastole, and he suggests that these data afford a means of estimating the relative intracardiac pressure. He assumes that a relatively long diastole in relation to a short systole signifies a high intracardiac pressure. We may refer our readers to the original paper for the reasoning on which this assumption is based, but it is of interest to note that as a result of his observations Dr. HARRIS differentiates two distinct types of heart failure, with different and characteristic symptoms and intracardiac pressures. The first of these he finds chiefly in young people with moderate hypertrophy of the left ventricle and an arterial blood pressure never unduly high, and becoming lowered when failure of compensation occurs. The heart is dilated in such patients, and the pulse-rate is high. Œdema is common and readily yields to treatment, while the arteries and peripheral circulatory apparatus in general are normal. In such cases sudden death is rare. Dr. HARRIS finds that the most characteristic feature in the different phases of the heart beat is a considerable shortening of diastole. As the pulse becomes quicker the diastole becomes shorter and shorter, while the length of systole remains nearly the same as in the normal condition. Dr. HARRIS argues that the intracardiac pressure in such cases is low, and he sees in the symptoms of this condition a protective adaptation, the rapid action serving to obviate more serious consequences. The engorgement of the veins and œdema which may appear in these cases he regards as secondary effects of an otherwise beneficial process due to the fact that the total output in rapid heart action does not compensate for the smallness of the output of a single contraction. In this type of case the adaptation which occurs is in the interest of the heart muscle, and the intracardiac pressure is low. The indication for treatment is to strengthen the heart muscle, and any cardiac tonic drug may be of use.

Dr. HARRIS'S second type of heart failure is one which occurs in patients with marked hypertrophy of the left ventricle or sclerosis of the heart muscle associated with high arterial blood pressure. Angina-like pain is common and there is no fall of blood pressure, even when general œdema supervenes. The pulse does not become accelerated and sudden death is common. By contrast with the other type the sclerosis of the arteries and general pathological condition of the peripheral circulatory apparatus are very marked features. Examined by the method suggested by Dr. HARRIS, it is to be noted that there is no increase in the pulse-rate when failure occurs in these cases, and the length of systole in relation to diastole remains the same as before the onset of failure, while the intracardiac pressure also keeps at a high level. Dr. HARRIS maintains that the adaptation which occurs in this type of failure is in the interest of the peripheral circulation, with secondary results often to the disadvantage of the heart itself. He points out that the high arterial blood pressure and the increased force of the individual beats are adaptations designed to overcome an increased peripheral resistance. Dr. HARRIS believes that the most striking clinical feature of a typical case of this kind is the absence of jugular engorgement, even when there is marked general œdema. He supposes that this is due to the long diastole, which allows ample time and space for the veins to empty themselves into the auricles. He claims that there can be no question of back pressure as a cause of the œdema, and suggests that it is more likely to originate from forward pressure. This part of his contention is perhaps a little obscure and is possibly open to criticism, as also is his dictum

that the indication for treatment in such cases is to give drugs which may lower the intracardiac pressure, but which interfere as little as possible with the peripheral resistance.

The concluding portion of Dr. HARRIS'S article deals with the effect of certain drugs on intracardiac pressure. This section is of particular interest, since in it are examined in some detail the actions of various drugs upon the heart's functions. Digitalis is so valuable in the treatment of many forms of cardiac embarrassment that it is, perhaps, not sufficiently recognised that its effects are complex and that they are not invariably beneficial. The fact that it depresses conductivity is now generally admitted, and its use in conditions of "blocking" is contra-indicated; indeed, it may induce this condition if injudiciously employed. Dr. HARRIS refers to certain effects of large doses of digitalis shown by the electrocardiograph, which suggest its discontinuance in any case in which they appear. He finds that medium doses of digitalis increase the intracardiac pressure, whilst large doses lower it considerably, and he brings forward some observations which show that strychnine has a definite action upon the frequency of the heart beat, lowering it in many cases and having a favourable influence on some forms of irregular heart action. Dr. HARRIS is of opinion that his observations prove that digitalis is indicated in cases which show his first type of cardiac failure, whereas it is to be avoided in those of the second type. In the latter he thinks that caffeine is a useful drug owing to its effect in lowering intracardiac pressure without decreasing arterial tension. At the same time he admits that many patients cannot take it for any length of time owing to its action on the nervous system; and under these conditions he recommends atropine. Even the occurrence of œdema he does not regard as indicating the use of digitalis in this class of case, and he advises puncture of the legs and the use of adrenalin. Dr. HARRIS'S paper raises many points of interest for discussion, and puts some known conditions in a new light. On these grounds alone it should be of interest to our readers, and may well stimulate further observations on similar lines to establish, modify, or controvert his contentions.

## An Antimalarial Campaign in Palestine.

THE 21st Army Corps of 70,000 men lay for nearly a year (November, 1917, to October, 1918) in Palestine, occupying the course of the river Auja from its mouth across the Valley of Sharon to the foot-hills. Several deaths from subtertian malaria occurred in December, and 20 cases of malaria were reported weekly from two brigades during January, the patients coming from an area covered with orange-groves and provided with numerous wells; they came from units camped near the wells, and were all of them men in billets near the mouths of the wells. It was clear that malaria threatened to be a great danger, and in January, 1918, Major E. E. AUSTEN, D.S.O., was directed to make a mosquito survey of the country. The mean day temperature was below 60° F., and it was found that anopheles were not breeding in the pools and streams, but in the warmer wells, and that adult anopheles, eager to bite, were sheltering in these wells. The wells were dealt with, and malarial infections became for the time a negligible cause of sickness. It had been intended to make an April offensive, which, however, was postponed owing to events in France. Clearly, then, the 21st Corps must remain in this area during the summer, and the prevention of malaria became at once the most important problem.

The corps was situated in one of the most malarious districts, and unless extensive works were undertaken malaria would destroy the corps. The area abounded in mosquito breeding-places, marshes and pools and sluggish streams overgrown with weeds and brushwood. The natives could not live in the valley in summer as malaria was rife; much less could the new comers. Young anopheles larvæ were found on April 12th in open water. All these things had been considered beforehand. On the day the advance was counter-ordered a survey of the whole area was put in hand, and in a few days drainage works were commenced under the direction of the chief engineer, General R. P. T. HAWKESLEY, to whose energy the successful result is largely due. The area slopes very gently to the west. It is seamed with small ravines, in which are many springs, and drained by sluggish streams often overgrown. These ravines had to be cleared of brushwood, to be banked, to be cleaned out, and to be kept clean, so that water could always run away. The marshes had to be drained; one of them could not be naturally drained, but an old tunnel through the barrier was found and utilised. It appeared that this tunnel harboured hibernating anopheles. They were killed with two cylinders of chlorine gas—with them were killed frogs, snakes, and small birds. Large numbers of men were put on this work—the sum total of which may be numerically expressed as 222,480 men-days—and the cost is estimated at £40,000. What did this expenditure achieve? Not so much, certainly, as if the work had begun one or two months earlier, but that was impossible, plans in February being so different. But, as we have seen, no time was lost; the best was done with the time there was. In spite of it, malaria did occur. The first attacks seemed due to the appearance in June of swarms of anopheles which had been hibernating, and which appeared while mean temperature was low and before free breeding in open water had begun. The drainage works had begun too late, so these June mosquitoes were able to breed, but by August the works undertaken had become effective, the pools and so on had been drained, and larvæ and adult mosquitoes had fallen to a minimum, instead of rising to the normal maximum appropriate

to the season. It is pointed out by Colonel E. P. SEWELL and Major A. S. M. MACGREGOR (who planned this campaign, and give a lucid account of it in the *Journal of the Royal Army Medical Corps* for February and March), that the very best work, limited to the English area, could not wholly prevent malaria, as some of the valleys led up to the Turkish lines and could not be denied to mosquitoes, though at great risk oiling was often carried out right up the Turkish wire. In fact, mosquitoes came over from the Turks and infected the British advanced posts.

Malaria did occur in the summer, as had been expected by all the experienced—10 per cent. of strength was lost in the 21 weeks of summer to Sept. 19th; the corps was not destroyed, as undoubtedly it would have been had it been forced to remain through the summer without anti-mosquito measures in its previous position. It must not be forgotten that General Headquarters had helped by sending the 21st Corps two malaria diagnosis stations, whose services were invaluable. The striking success of Lord ALLENBY'S coup in September, 1918, was in the main due to his skilful plan and the valour of his troops. But that his troops were there to carry out his plan is in great part due to the excellent work done in the 21st and other corps throughout his army, by the Royal Army Medical Corps to keep the troops free of the malarial infections, which have long lain like a pall over the country and prevented its profitable development. And how small was the relative cost of prevention! £40,000 to protect 70,000 men, to prevent 60,000 cases of malaria; 12*s.* per man for prevention. Quinine for the treatment of each case would not have cost less than 20*s.*, and the deaths that would have occurred if the epidemic had broken out would have been a tragic loss. We are indebted to the authors of a valuable paper.

## THE COMPLIMENTARY DINNER TO SIR GEORGE MAKINS.

MAY we remind our readers that this dinner will be held on Monday, May 10th, at the Wharncliffe Rooms, Hotel Great Central, at 7.30 for 7.45 P.M., and add that there is no leader of our profession, who has more clearly merited a public compliment from his colleagues. Any of Sir GEORGE H. MAKINS'S friends, and any who have reason to know the great value to the public as well as to the profession of the services which he has rendered, will be welcome. They are asked, if they have not already done so, to notify Mr. C. MAX PAGE, 134, Harley-street, W.1, of their intention to be present. This information is essential in order that seating arrangements can be made. Payment for the dinner (1 guinea, not including wine) to be made at the Wharncliffe Rooms. Sir CUTHBERT WALLACE will preside, and no tickets will be issued.

# Annotations.

"Ne quid nimis."

## LONDON AS A POST-GRADUATE CENTRE.

THE organisation of medical post-graduate education in London has now been coördinated by the Fellowship of Medicine upon the lines laid down at its foundation meeting. One of the original aims of the Fellowship was the establishment of a central bureau from which information respecting post-graduate facilities in Great Britain could easily be obtained (see THE LANCET, Jan. 4th, 1919, p. 26). This position has now been reached, and the Fellowship has become a recognised centre, at which inquiries from medical men in all parts of the world are received. Most of the correspondents wish to map out courses of work in London and the provinces. Those who not only write but arrive are growing in number, and visitors from the continent and from overseas have now acquired the habit of proceeding to the offices of the Fellowship within a few hours of their arrival. In short, the energies of a year's hard work are bearing gratifying fruit, and the post-graduate students who attended the London hospitals and schools last summer have mostly gone home with a satisfactory account of their reception. Many of the men coming over to-day from the Dominions and the United States come with personal introduction to the Fellowship from previous students, and the reputation that London has suffered under for inhospitality—a reputation which has done great harm to post-graduate work in this country—is being corrected.

The last issue of the weekly Bulletin of the Fellowship shows the possibilities of the post-graduate work as now coördinated. A student, assisted by the daily programme, can plan a course of study in any department and at almost any hour of the day, granted that the promises of the schedule are kept. Curiously enough these advantages are not being fully appreciated by the medical men in London, or even by the home country. Whilst the courses in the metropolis are attracting post-graduates from overseas and from the continent, they have not yet aroused the enthusiasm of men who are within easier reach of the facilities offered. Not long ago, when many correspondents reflected upon the obvious dearth of post-graduate facilities in London in comparison with those offered, for example, in Germany, we had no suggestion to make. Now we advise all our readers to write to the secretary of the Fellowship of Medicine, 1, Wimpole-street, London, W.1, for a copy of the Bulletin, that each may see for himself how far the special department of work in which he is interested is met by the arrangements of the Fellowship. If he is in any doubt as to his methods of procedure he should make inquiries, and certainly if he considers that any promises are not kept he should notify the laches at headquarters.

## LEAD POISONING AND COMPENSATION.

THE recent trial before Judge Mulligan, K.C., at the Holt County Court (Norfolk), of a claim for compensation under the Workmen's Compensation Act, raised in an instructive manner the difficulties which may arise in cases of alleged lead poisoning. The medical evidence, while in harmony as to the

**existence of lead ingestion as a toxic factor at one period in the man's history, was at variance over its bearing on his present condition.**

The applicant was a man of 23, who had been employed at Melton Constable Station, from April, 1911, to January, 1919, in painting engines, using white lead and sand-paper. In December, 1915, he had an attack of lead poisoning, as certified by the late Dr. J. Skrimshire, who attended him for six weeks. For a while after this he was given other work to do, but returned to the painting in June, 1916, when he developed a second attack of lead poisoning after scraping the inside of carriage roofs. On this occasion he was laid up for four days. He had a third attack in January, 1919, which totally incapacitated him until the following March; since then he had only been able to do light work, and he now stated that he suffered from weakness in the arms and legs and pain in the abdomen. The railway company had accepted the man's statement and the doctor's certificate of lead poisoning, and had paid him compensation for loss of work during the three attacks specified. But on being sent to see Dr. Barfoot Mills, of Norwich, in March, 1919, Dr. Mills certified that he was not suffering from lead poisoning, and the compensation was accordingly stopped.

When the case came on for trial Dr. Mills gave evidence that he had found no sign of lead poisoning, but that the man was suffering from neurasthenia and weakness of the heart, and that the best thing he could do was to get back to work. The idea of lead poisoning had been so drilled into the man's mind that he put all his troubles down to that cause. In cross-examination Dr. Mills admitted that if Dr. Skrimshire was right in certifying the man to be suffering from lead poisoning he would assume the neurasthenia to be due to that. Dr. H. J. Starling, assistant physician to the Norfolk and Norwich Hospital, who examined the applicant on March 24th last, found him in a very excitable condition, with disordered action of the heart but no organic disease. The condition of the abdomen was not due to actual pain, but to nervous contraction in anticipation of pain. There was no sign of lead poisoning, but if the conviction remained in the man's mind that he was suffering from it, the probability of his cure was very slight, and the best thing for him was work. Dr. R. T. Hales, of Holt, certifying factory surgeon, said he had examined the man, but found no evidence of lead poisoning, though from his story he presumed he was convalescing from an attack of lead poisoning. On the other hand, Mr. S. H. Burton, consulting surgeon to the Norfolk and Norwich Hospital, said he examined the plaintiff on Dec. 16th last, and again on the morning of the trial, and considered that his condition was compatible with the story he gave of his history. At the present time the man was neurasthenic, and in Mr. Burton's opinion light work in the open would do him good. Although he found no trace of lead poisoning present, yet he considered that the excited action of the heart from which he suffered was brought about by the man's lowered tone due to the lead poisoning.

The judge, in summing up, commented on the great importance of the case, lead poisoning being one of the diseases which under the Workmen's Compensation Act were placed under the same category as accidents, and compensated accordingly. There was, he said, a considerable difference of opinion in the medical evidence which he had heard, but he found as a fact that Dr. Skrimshire was right when he said the man was suffering from lead poisoning, and he accepted without hesitation the evidence of Mr. Burton that his present condition was due to the lead poisoning. The doctors had all agreed in saying that the plaintiff was neurotic and that he would not recover so long as he brooded on his illness. He could not go back to painting, but there was plenty of other work suitable for him. He awarded the plaintiff 12*s.* a week, to commence from Nov. 1st, with costs.

**The problem presented to the judge in this case was a difficult one, and in our opinion he decided wisely and judicially. Upon the evidence put before him it would seem clear that the applicant had certainly had three attacks of lead poisoning, and that he had quite rightly been paid compensation for these. All the medical evidence pointed to the fact that the present condition of the man was one of neurasthenia with excitable or disordered action of the heart. The judge accepted the view that the man's condition was a sequel of his attacks of lead poisoning, and at the same time recognised that light work of a different character would be beneficial to him morally, physically, and mentally. We may express the hope that enlightened decisions of this kind may become the rule in cases where neurasthenia figures in compensation cases after accident, injury, or industrial disease.**

## EPSOM COLLEGE: THE RISE IN EXPENSES.

**THE general increase in salaries and in the cost of living, as well as the alterations in the retiring grants to masters, on the lines of the Superannuation Act of 1918, have compelled the Council of Epsom College to increase the school fees. The increases will date as from September next, and will apply to all boys, whether entering the school for the first time or at present there. For the sons of medical men the fees will be increased from 70 guineas to 100 guineas; for the general boarders from 80 guineas to 120 guineas; and for day boys from 25 guineas to £40. We can quite understand that the Council had no alternative but to make these increases in the school fees, for the loss on the working of the school for the past year has amounted to £3779 15*s.* 10*d.* The charitable contributions in aid of the Foundation cannot, of course, be expended in defraying any of the expenses of the school beyond paying for the education of the foundationers.**

## CATHETERISM OF THE URETER IN CALCULOUS ANURIA.

**IN the *Progrès Médical* of March 20th Professor Léon Thévenot, of Lyons, has selected for commentary two cases of calculous anuria treated by a method which, so far, has been seldom employed—ureteral catheterism.**

A man, aged 35 years, was admitted into hospital on May 31st, 1909. He was addicted to alcohol, and had suffered for years from attacks of renal colic, during which he did not pass urine. After an attack in 1907 he passed two pieces of gravel of the size of a small pea. An attack of renal colic with anuria began three days before admission, and only 50 g. of urine were passed on the previous evening. The left kidney was painful, but not palpable. Two days after admission the patient was cystoscoped. On the left side the ureteral catheter was arrested at a distance of 6 or 7 cm. from the orifice of the ureter; on the right side nothing abnormal was noticed. On the following day the patient passed a large and irregular calculus, and the emission of urine became normal. On performing cystoscopy again the left ureter was found permeable.

In a second case a man, aged 47 years, was admitted on May 3rd, 1911. Since 1893 he had suffered from attacks of renal colic, especially on the left side, and hæmaturia, and had passed phosphatic calculi. In 1903 lithotrity was performed for stone in the bladder. A large calculus was removed from the right kidney. In March, 1914, he was readmitted for complete anuria, following renal colic. A catheter was passed into the left ureter as far as the renal pelvis without encountering resistance. On the following day 2½ litres of urine were passed. Radiography

did not show any calculus in the left kidney. In June, 1915, he had an attack of anuria lasting two days, and passed 80 g. of urine on the third day. The ureteral catheter was passed after momentary arrest at a distance of 6 cm. from the ureteral orifice and yielded a discharge of 1 c.cm. of fœtid pus. It was passed as far as the renal pelvis, from which turbid urine flowed. In one and a half hours the patient passed 407 g. of turbid fœtid urine.

How ureteral catheterism acts is not easy to say, because the pathogenesis of calculous anuria is not fully understood. The catheter may push back a calculus which is obstructing the mouth of the ureter, or it may give rise to contractions which cause the calculus to be expelled into the bladder. On the hypothesis that the secretion of urine is reflexly inhibited, the catheterism may reflexly re-establish it. Whatever be the explanation it is efficacious. Out of 40 recorded cases it was successful in 32. In the early days of the anuria Professor Thévenot thinks it is absolutely indicated. The injection through the catheter of boric solution or glycerine seems to have a favourable action in re-establishing the secretion of urine, which reappears immediately or in a few hours. Some writers have seen the anuria recur after removal of the catheter; therefore it ought to be retained for a certain time. If catheterism fails it may be repeated several times, as long as all signs of uræmia are absent. If the surgeon does not see the patient till about the fifth day catheterism may still be tried, but if it fails nephrotomy should be immediately performed. After the fifth day, or if the slightest signs of uræmia have appeared, Professor Thévenot recommends nephrotomy. Should catheterism be performed on one or both sides? It has rarely been performed on both sides, and the extra benefit derived does not seem to be marked. Professor Thévenot thinks that this procedure uselessly prolongs the operation. It should be reserved for cases of bilateral calculi or of failure of unilateral catheterism. Usually it is sufficient to catheterise on the side of the morbid phenomena, whether definite renal colic or dull pain. In numerous cases it has not only relieved the anuria, but led to the elimination of the renal calculus and the avoidance of nephrotomy.

## THE BEST TYPE OF ARTIFICIAL LEG.

THOUGH an artificial limb must obviously conform to certain definite requirements, there is still margin for variation in the materials used in its manufacture. Moreover, the adjustment of the conflicting claims of great strength and light weight must be made with some reference to the expense involved. It is interesting to note that the weight cannot be reduced below a certain optimum figure—estimated at 4 to 6 lb.—otherwise the limb becomes difficult to control under unfavourable conditions such as heavy gusts of wind or long wet grass. In a letter addressed to Sir Arthur Stanley, Mr. Edred M. Corner, surgeon in charge of the Artificial Limb Department at St. Thomas's Hospital, states that over 90 per cent. of men with above-knee amputations experience greater benefit from the light metal artificial limbs used at this hospital[1] than from the wooden limbs provided by the Ministry of Pensions, and he pleads for the official issue of a metal leg. The main difficulty appears to be the expense, since not only is the initial cost higher, but the repairs are more difficult and costly, though, it is claimed, less frequently required. On the other hand, men can apparently do more work with less fatigue, and acquire balance and control of complicated movements with greater ease with a light metal leg, which is said to be specially useful in hot climates. A suitable leg for above-knee amputations can be turned out in five weeks at a cost of £27. An artificial arm made of light metal is already issued by the Ministry of Pensions, and the official adoption of an approved pattern of metal leg would seem a desirable outcome of the successful experiments at St. Thomas's Hospital.

[1] See THE LANCET, 1919, ii., 1173.

## SECONDARY SYPHILIS OF THE HEART.

ACCORDING to Dr. C. Oddo and Dr. C. Mattei,[1] of Marseilles, in descriptions of the effects of syphilis upon the heart, the tertiary manifestations alone have hitherto received much attention. They point out, however, that the increasing frequency of lesions supposed to have appeared in the tertiary stage suggests that the heart is more often affected in the secondary stage than has hitherto been realised. They report a fatal case of pericarditis in a man aged 54, who presented mucous tubercles of the lips and scrotum. The histological examination showed definitely that the lesions affected the pericardium and that the myocardium was not involved. The study of previous cases shows that secondary syphilis of the heart may assume different forms, some being mild and characterised by arrhythmia only, and others serious and fatal. The diagnosis is based on the history of the disease, the clinical course, the Wassermann reaction, and especially the effect of treatment. The prognosis should be as guarded as that of secondary syphilitic meningitis. Specific treatment, preferably by mercurial preparations, should precede the use of cardiac tonics. Salvarsan should be employed with caution, as it is very liable in such cases to give rise to cardiac collapse and pulmonary œdema.

[1] Bulletin de l'Académie de Médecine, March 30th, 1920.

## NITROGEN IN WAR AND PEACE.

IN connexion with the scheme now on foot in this country for the manufacture of nitrates from the air at Billingham-on-Tees, involving the outlay of something like 5 millions of money by a powerful combine, the following note taken from the *Economic Review* (April 21st) on Chilean nitrates production is of interest:—

*Chilean Nitrates Production.*

The Chilean nitrate fields cover approximately 90,000 hct.; their resources are estimated at over 100 mill. t. Only the fields to the north of Antofagasta are being worked.

The exploitation of the southern deposits was long hampered by the Government's refusal to build railways to that district, the object being to prevent over-production. The nitrate is obtained in surface workings; iodine is extracted as a by-product. During the war, production increased enormously. The export rose from 40 mill. quintals (46 kg.) in 1914, to 64·8 mill. in 1916; in 1917 it was still as much as 62·2 mill. Before the war the bulk of the export went to Germany. (*Korrespondenzbl.*, March 23rd.)

The Billingham-on-Tees site in county Durham was selected by the Government a year before the Armistice was declared with the view of increasing the output of nitro-explosives, and to some extent

buildings, machinery, and plant were begun. The scheme, started for war purposes, will now, it is to be hoped, be developed for peace issues. It should be an important acquisition to British agriculture, and the promoters, we understand, are assured of the economy of the process and convinced of a large output of nitrate for fertilising purposes in the future. The fixation of nitrogen from the air on a large scale clearly means great national advantages, whether it be an answer to war or peace calls. We pray for the latter. In either case it is desirable to be independent of Chilean supplies.

## LEPROSY IN INDIA.

Sir William Vincent has introduced into the Imperial Legislative Council a Bill to amend the Indian Lepers Act, which follows, as far as possible, the recommendations of the Conference on the leper problem held in Calcutta in February under the auspices of the Mission to Lepers. That Conference, the most important gathering of the kind held in India, had before it recent information regarding the treatment of lepers, both from the public health and the medical points of view. The findings of the Conference were clear and far-reaching. Proof having been given that leprosy is communicable in a variety of ways, the only way to rid a country of the disease is to isolate and to keep under supervision and control all persons afflicted with it. This has been done in Sweden, Norway, Iceland, and Germany with the most satisfactory results—namely, the practical stamping out of the disease. In the Philippines, which were quoted frequently at the Conference as an example which India should follow, there has been within the last few years a reduction of leprosy to an extent which suggests that in a few years it may disappear altogether from those islands, and in the Hawaiian Islands a similar state of things prevails. To secure such results, however, the complete isolation of all leprous persons has to be insisted on. In the asylums or settlements to which all such persons are relegated the utmost care is needed to keep the sexes apart and, as far as possible, to discourage the marriage of persons afflicted with leprosy, inasmuch as the fecundity of lepers, especially of females, is far in excess of the normal. Where it is impossible to secure this isolation the spread of the disease may be checked by removing from lepers all children as soon as possible after birth, because while the disease is communicable it is not necessarily hereditary—the children of lepers are not born lepers, nor need they become lepers if the precaution of removing them from leprous surroundings is taken early.

Unfortunately, in India it is not possible, for various reasons, financial among others, to act completely upon these findings: the compulsory segregation of all lepers is not possible, so the Act will confine itself to pauper lepers—namely, those who are found begging in the streets and actively endangering the health of the general public. The definition of leper received close attention from the Conference, and has been amended to include all leprous persons, and not only those suffering from ulcers, sores, or other cutaneous lesions, since the discovery was made that the disease is communicable at all stages in a variety of ways, but particularly by mucous nasal discharges. These steps having been taken, it follows naturally that there will be a great increase of lepers under detention, and provision will have to be made for their housing and treatment in properly equipped asylums, hospitals, and dispensaries. There are Government asylums in most of the provinces, and while nothing but good can be said about these institutions, the best results hitherto secured in the treatment of lepers have been in the institutions conducted by Christian missions. Here is clearly indicated an agency with which the Government may coöperate for this purpose. It is fortunate, too, that in the matter of the medical treatment of leprosy, India, thanks to the efforts of Sir Leonard Rogers and others working in the same field of research, has little to learn. The discoveries that have been made have been put into use in most of the asylums and hospitals with good results. But all existing institutions will be seriously crowded when pauper lepers are cleared off the streets, and steps will have to be taken to provide a staff of medical men with special training in the diagnosis and treatment of leprosy.

## MEDICAL REVANCHE.

THE principle of individualism, of which we are reminded by the centenary this week of Herbert Spencer's birth, has little application at the present time. Our Paris correspondent writes that the medical profession in France is becoming restive under the constant discomfort, inconvenience, and hindrance in its work caused by strikes, especially by those involving transport. A spirit of resentment is arising in medical circles against the members of trade-unions, who do not hesitate to sacrifice to their own special interests those of the rest of the community, while at the same time counting on the unfailing supply of medical services. A number of medical societies have suggested an eight-hour working day for medical men, with increased fees for over-time. At a recent congress held at Quimper, the associated medical men of the department of Sud-Finistère decided to refuse to attend patients, rich or poor, in private or in hospital, to-day, May 1st, when the supply of practically all other commodities ceases. They added a rider to the effect that humanitarian considerations are no more binding upon doctors than upon those who hold up trains supplying milk to babes and sick persons. Our correspondent does not say why his colleagues, who are determined on drastic action, should not confine their reprisals in the first instance to the strikers and their family circles. The hardship to patients involved in granting an eight-hour day to the sister profession of nursing has already been felt in Paris, as our correspondent himself testified a fortnight ago.

## MEDICAL INSPECTION OF HIGHER-GRADE SCHOOLS.

MUCH good should come of the issue by the Board of Education of Statutory Rules extending medical inspection and treatment to pupils in secondary and continuation schools throughout the country. These rules affect all the children in schools provided by the educational authority, including the pupil-teacher centres and the preparatory classes recognised by the Board for the training of teachers, the junior technical schools and day classes. Any other school or educational institute, whether aided by the local authority or not, may take advantage of the scheme and ask the

authority to provide medical inspection and to make arrangements for attending to the health and physical condition of pupils. Educational authorities are requested to consider how far they can avail themselves of the services of private medical practitioners, and a warning is added against the establishment of a special service for domiciliary treatment. Provision must be made for medical inspection of pupils during their first term after admission, and then every succeeding 12 months. Where authorities are starting the work and time is limited, the Board suggests that preference be given to children just admitted or on the point of leaving. In London, where these children have been systematically examined for many years past, no difficulty has been experienced in getting defects treated and preventive action taken, and valuable information will result when the machinery is got going throughout the country. The Board of Education meets half of the yearly expenditure incurred.

## BIOLOGICAL CONTROL OF DRUGS.

IN order to secure effective control of certain therapeutic substances, the Minister of Health has appointed a committee to consider and advise upon the legislative and administrative measures to be taken. The committee appointed consists of the following members:—

Sir Mackenzie D. Chalmers, K.C.B., C.S.I. (chairman).
H. H. Dale, C.B.E., M.D., F.R.S., head of department of biochemistry and pharmacology under Medical Research Council.
G. F. McCleary, M.D., medical officer, Ministry of Health.
A. B. Maclachlan, assistant secretary, Ministry of Health.
C. J. Martin, C.M.G., D.Sc., F.R.C.P., F.R.S., director, Lister Institute of Preventive Medicine.

The secretary of the committee is Dr. E. W. Adams, O.B.E., of the Ministry of Health, Whitehall, S.W. 1.

The quality and authenticity of a number of important remedial substances offered for sale to the public cannot be tested adequately by direct chemical means. It is possible, for instance, by the technique of an ordinary chemical laboratory to state that a sample of iodide of potash or of double cyanide of mercury is free from impurity and may be safely administered with the expectation of certain well-known therapeutic effects. The same cannot be said of many of the modern synthetic remedies, and this was so notoriously the case with arsenobenzol in its various modifications and aliases that administrative action was found necessary at the beginning of the war to protect both patients and administrators. Many of the alkaloids and hormones and all the vaccines and immune serums are in much the same position, and the time has now come to ensure the same protection against fraud and error in the case of complicated remedies that we already enjoy in the case of the simpler ones.

## A MEDICAL SURVEY AT MIDDLE AGE.

THE annual report for 1918 of the county medical officer of health for the Soke of Peterborough compensates for its late appearance by containing suggestions of a piquant character. The author, in discussing the uniform decline in infant mortality throughout his area, states frankly that it is evident everywhere and "is as marked in areas where no ad hoc measures are taken as in those where thousands of pounds of the ratepayers' money are annually spent." He is evidently distrustful of the results of recent developments in the supervision of the infant and of the school child, for he adds that the nation has "to spend enormous sums on infant welfare, with results that, owing to our ignorance of the laws of heredity and prenatal hygiene, are, to say the least of them, unconvincing." His remedy is the compulsory examination and treatment of persons in early middle age—at or about the age of 40—when the commencing signs of disease which carry off a large number of individuals over 45 are easily detected, and still capable of treatment with comparative ease. There is evidently a little wavering in the author's mind as to whether this measure is all-sufficient or whether it needs special advocacy; for the Ministry of Health is at first blamed for not concentrating on this period of danger, while later caution again raises its head and proclaims that "medical examination and treatment should be provided for all at all ages instead of confining it to the most healthy period of life." Nevertheless, there is much sound sense in the suggestion of a medical stock-taking half-way through what we all hope may be our span of life. How much misery and ill-health might be avoided if a man could be advised in time that his arteries were ageing too rapidly, and that such and such measures should be adopted to maintain a sound body; how much early malignant disease in women might be caught in time and cured; how valuable would be advice and warning as to dietetic indiscretions now no longer trivial in their effects! As to the abstract value of such examination there can be no two opinions. But, having taken the horse to water, can you make him drink? Having, let it be supposed, provided the machinery for his examination at this mature age, will the average man of mature habits subject himself to its beneficent inquisition? In Germany, perhaps; but in this country we can say, with tolerable confidence, No.

THE Graduation Dinner of the University of London will be held at the Guildhall on Wednesday May 19th.

THE Scottish Secretary has appointed Dr. Norman Walker as Inspector of Anatomy for Scotland, a post which he has held in a provisional capacity during the last two years.

Sir Arthur and Lady Newsholme were passengers on the s.s. *Carmania*, which arrived in Plymouth on April 23rd from New York. Sir Arthur Newsholme has in the press a volume of American addresses on "Public Health and Insurance," which is being published by the Johns Hopkins University Press.

WE expect that Sir William Orpen's presentation portrait of the learned and veteran professor of medicine at the University of Cambridge may prove one of the principal pictures at the exhibition of the Royal Academy of Arts to be opened next week. The portrait of Sir Clifford Allbutt, it will be remembered, is the result of a subscription among medical men, and is to be given to Sir Clifford Allbutt alike to mark the general esteem and admiration of his colleagues, and to celebrate his long tenure of the position throughout the war of the Presidency of the British Medical Association. All those who have seen the portrait have admired it both as a likeness and as a dignified and decorative representation of a great man.

# THE MEDICAL EXAMINATION OF THE CIVILIAN AERONAUT.[1]

AN explanation of the methods and standards now in use in this country for the examination of applicants for licences as civilian airmen was published, at the end of last week, under the authority of the Air Council. The Dominions and Colonies, who are now about to put into practice the principles laid down in the International Air Convention, have been especially in the eye of the Air Council in issuing a valuable brochure, but all the medical profession, and, indeed, the public, will benefit by learning the careful procedure whereby the intending aeronaut is selected for his dangerous and responsible career.

The pamphlet begins by reference to the

*International Medical Requirements for Air Navigation.*

An extract from the Convention relating to International Air Navigation, 1919, is quoted, setting out that the requirements are that pilots and navigators engaged in public transport shall be 19 years of age, of good family and personal history, free from mental, moral, or physical defect or hereditary nervous instability, and able to reach the standards required at a general medical and surgical examination and also at examinations into special sense acuity. The International Convention sets out that—

(1) Every candidate before obtaining a licence as a pilot, navigator, or engineer of aircraft engaged in public transport shall present himself for examination by specially qualified medical men appointed by, or acting under, the authority of the contracting State.

(2) Medical supervision, both for the selection and the maintenance of efficiency, shall be based upon certain requirements of mental and physical fitness. The aeronaut must neither suffer from any wound, injury, or operation, nor possess any abnormality, congenital or otherwise, which will interfere with the efficient and safe handling of aircraft. Nor may he suffer from any disease or disability which renders him liable suddenly to become incompetent in the management of aircraft. He must, therefore, possess heart, lungs, kidneys and nervous system capable of withstanding the effects of altitudes and also the effects of prolonged flight. Further, the aeronaut must possess a degree of visual and auditory acuity compatible with the efficient performance of his duties, and also possess free nasal air entry on either side.

The Convention, further, has provided that for the present each contracting State shall fix its own method of examination until the authorised medical representatives of an International Commission for air navigation shall decide on tests and standards. In order to ensure the maintenance of efficiency the aeronaut is to be re-examined every six months and the findings attached to his original record. In case of illness or accident there is also a re-examination, and no aeronaut may resume duty before being pronounced fit. Moreover, the date and result of each re-examination is recorded on the certificate. Lastly, the Convention provides that each contracting State may raise the standards as they like, but cannot lower them.

*The British Methods of Examination.*

The pamphlet describes the British methods for the examination of flying-men in compliance with international medical requirements. The American Air Service has issued a full and profusely illustrated manual of the national procedure, and it is none too soon that the same is now done in this country. The physical and temperamental suitability of candidates for aviation engaged during the war the earnest attention of British doctors and physiologists, as in France, Italy, the United States, and Germany, and the desire of the Royal Air Force is to issue some pattern of general guidance for the future, having regard to the lessons of the past.

The pamphlet then sets out in paragraph form certain instructions taken verbatim from those issued to the medical officers of the Royal Air Force for the examination of aviation candidates. The special flying tests, which for a long time were carried out separately, fall for examination under the heading of the different systems to which they apply. The mental tests are not included, not because they are considered useless, but rather, it would seem, because it is better to leave their character to the discretion of the examiner; and the same may be said of special reaction-time tests or muscle-tone tests, which have not been adopted in this country to any large extent because further investigation is needed.

The methods of examination are then carefully described under the headings of family and personal history, age, general surgical examination, general medical examination, and special examinations of the eye, ear and vestibular apparatus, nose, and throat. Under the head of personal history, the following conditions are considered to require special mention :—

*Head.*—A history of fracture of the skull should definitely disqualify for air work.

*Neck.*—Scars, the result of removal of glands, should not be held as a cause for rejection, but the time which has elapsed since operation, the question of recurrence and signs of tubercle elsewhere, are all points needing attention and examination.

*Chest.*—In cases of perforating wounds of the lungs, any signs of permanent injury to the lung tissue, while not necessarily constituting a cause for rejection, will indicate the need for special care with the tests for respiratory efficiency. A history of empyema, with resection of rib, calls for careful consideration of the cause of the condition and its effect on the lung expansion.

*Extremities.*—Applicants suffering from the conditions mentioned below should not be accepted: (1) Amputation of thumb at carpo-metacarpal joint; (2) amputation of first and second fingers; (3) amputation of hand or arm; (4) injuries or operations leaving marked limitation of movement; (5) amputation of the leg above the knee; (6) operations on the knee-joints, which have resulted in such limitations of movement at the joint as to interfere with the proper control of the machine.

*Note.*—Amputations below the knee are not necessarily disabling, provided the movement at the knee-joint is free; each case should be considered on its merits.

In addition to the above, injuries which involve the trunks of the larger nerves, resulting in paresis, or which leave scars causing pain or cramp, are sufficient cause for rejection.

*Abdominal operations.*—The fact of an abdominal operation having been performed should not, in itself, disqualify an applicant or airman, provided that no hernial protrusion or marked weakness of the abdominal wall has resulted.

*A history of tuberculous disease* of joints or bones, recent or remote, should disqualify.

*A dislocated semilunar cartilage* may prove a permanent disability, even after so-called successful operative treatment.

In respect of habits, the consensus of opinion is in favour of the strictest moderation in tobacco and alcohol among flying-men. Any subject with a tendency to cardio-vascular or nervous instability should therefore be strongly advised in this direction, but gradual renunciation is probably more expedient in most cases than sudden and total abstention. The following is the text of the pamphlet :—

*Smoking.*—It is recommended that careful record should be made as to whether "non-smoker" or "smoker," and, if the latter, whether pipes or cigarettes, or both, and whether moderate or excessive. The simplest method is to make a note such as C 10 or P 3—i.e., ten cigarettes or three pipes per day.

*Alcohol.*—Questions under this head should elicit whether teetotaller or "takes alcohol." If the latter, the form, e.g., spirits, wines, beer, or cocktails, and the records should give some idea of the average daily quantity.

*Venereal disease.*—Any applicant or airman with a history of syphilitic disease should be deferred, and referred to an expert for an opinion before granting or renewing a licence.

*Sleep.*—Enquiry should be made as to hours of sleep, the occurrence of dreams, nightmares, &c. If sleep is poor, questions should be put as to the difficulty of getting to sleep, and the records should show the number of hours slept.

Athletic proficiency and familiarity with unsedentary pursuits will gain marks, as, of course, will a history of previous flying work. The minimum age of 19, as ordained by the International Convention is adopted, but no maximum age is suggested.

We need not put out the details of the general surgical examination and general medical examination, because all those who have to conduct the examination are certain to be familiar with them, but it is interesting to see how valuable the methods of body measurement advocated by Professor G. Dreyer in our columns[2] have proved themselves. It is considered that these methods provide an accurate means of estimating physical proportions, and should be applied practically at each examination and re-examination.

*The Examination of the Respiratory System.*

The examination methods for discovering the condi-

[1] The Medical Examination of Civilian Pilots, Navigators, and Engineers. London: His Majesty's Stationery Office. 1920. To be purchased through any Bookseller or directly from H.M. Stationery Office, 6*d*. net.

[2] THE LANCET, August 9th, 1919, p. 227.

tions of the respiratory system of aviators may be quoted verbatim :—

(i.) *Condition of lungs.*—Evidence of chronic bronchitis, emphysema, or tuberculous lesions (quiescent or active) should absolutely disqualify an applicant. An applicant should not be accepted as a pilot if the chest expansion as a whole is bad, especially if the deficiency is due to malformation of the chest wall.

(ii.) *Breath holding.*—(Apparatus required: stopwatch and nose-clip.) The subject is asked to expire as deeply as possible (preferably audibly) and then to fill the lungs fully (but not to absolute distension), and to hold the breath with the nose clipped or held. The reason for the audible expiration is that it has been observed that some subjects suffering from stress have lost the power of expiring fully, and a marked shortening of time taken to expire as fully as possible may afford an indication of such loss of power. The time during which the breath is held is noted, and the subject is then asked the reason for giving up. This should be recorded. The significance of the test and the time that is expected must not be communicated, and on no account may any examinee time himself.

*Reason for ceasing.*—Normally an answer such as "I had to give up," "I felt I should burst," "I wanted to breathe" is given. Subjects suffering from marked disability at altitudes almost invariably return an abnormal answer, e.g., "I became giddy or dizzy," "Things went blurred," "The blood rushed to my temples," "I began to feel squeamish." Where the answer is deemed not to be normal the subject's own words should be given.

The average time the breath is held by the normal fit pilot is 69 seconds, the minimum time being 45 seconds. Generally speaking, a man who does not hold his breath 45 seconds should not be admitted as a pilot. As a matter of experience it will be found that very nearly all such cases will be rejected on medical grounds, apart from this test. The test is believed to afford indication of: (*a*) The stability of the respiratory centre, and indirectly of the nervous system generally. (*b*) The likelihood (when the time is short and an abnormal answer is given) of the subject suffering from oxygen-want at altitudes. (*c*) Resolution to "carry on" under conditions of stress.

(iii.) *Expiratory force.*—(Apparatus required: Mercury U tube.) The applicant or airman is asked to hold his cheeks with the thumb and forefinger of the left hand, and steadily to blow the mercury column of the standard U tube up as high as possible with the scale turned away. Several mouth-pieces should be kept in disinfectant and carefully cleaned for each subject. On no account must the applicant or airman be allowed to swing the mercury up violently, and in all cases the height of any initial swing is to be disregarded. The reason for holding the cheeks is that it has been found that in some cases the mercury may be forced up to abnormal heights by the action of the cheek muscles. The number of mm. Hg blown is recorded. The examinee is then asked to repeat the performance while looking at the column. The resolute subject may, under these conditions, considerably pass the effort which he did not see, in this way affording some indication of his mental make-up. On the other hand, a subject who is not trying may give very discrepant readings. With the manometer again turned away, he may, by encouragement, be made to surpass his previous efforts. But attempts made whilst looking at the manometer scale, will, if he is not really trying, fail to surpass previous efforts which he has seen.

The average for normal individuals is about 105 mm. Hg. When under 80 mm. Hg it suggests that the subject will probably be incapable of sustained effort in routine aerial work and should probably be rejected. The test, however, should be taken in conjunction with the results of the rest of the examination.

(iv.) *Fatigue test and pulse response.*—(Apparatus is given.) This test is performed as follows. The applicant is asked to empty the lungs, fill up, blow the mercury in the U tube to the height of 40 mm. and hold it there without breathing for as long as possible, the nose being clipped. The average time in the large number of cases tested is 50 seconds: below 40 seconds is unsatisfactory. An essential adjunct to this test is the behaviour of the pulse, which is counted every five seconds during the time that the mercury is sustained. Starting at the fifth second in the normal individual there is generally a steady slow rise in the rate of the pulse, or a fairly marked rise, which is sustained most of the time. For example, the pulse-rate may rise gradually from 72 to 96 or 108, according to the time the breath is held, or the pulse may rise almost at once from 72 to 96 or 108, and may be sustained there. A large rise in rate—e.g., from 72 to 132 or 144—is unsatisfactory. In cases of stress a characteristic response is for the pulse to jump up to a quick rate during the fifth to the tenth or fifteenth seconds, and then to fall away in rate to normal or even below normal.

Such a response is as follows: Normal at start, 84; 5th-10th second, 144—sometimes almost impalpable; falling away (say 20-25 seconds) to 72 or even 60. Such cardiometer instability is an adverse factor in aerial work and is an indication for rejection. Other points in the examination should, however, be taken into consideration. The test is to be recorded by first noting the number of seconds during which the mercury column is sustained, and then writing down the pulse-rate of 5 second intervals, e.g., 50—P.6677789888, the time taken to blow the mercury to 40 mm. being ignored.

This test affords information as to the stability of the medullary centres and of the power of resistance to fatigue.

(v.) *Flack's bag test and Dreyer's nitrogen test.*—Although these tests have proved themselves of great value detailed descriptions are not included here, partly because the time taken to apply them properly is considerable, and partly because they really require to be worked by trained physiologists. In the case of the Dreyer test, the apparatus is expensive and, at present, difficult to obtain. Should information be required as to the method of their use and results obtained, reference should be made to the publications of the Air Medical Investigations Subcommittee of the Medical Research Committee, Nos. 1, 2, and 5.

(*To be continued.*)

# CHICAGO HEALTH REPORT.*

CHICAGO, which only had one white settler in 1804, and a population of 7,580 in 1843, is now a city of 2,596,681 souls, covering an area of 190 square miles, and increasing at the rate of 50,000 a year. Fifty-one per cent. of the population consists of males, and 97·9 per cent. are white men. As regards race, 62 per cent. were born in the United States, 14 per cent. in Germany and Austria, 6 per cent. in Russia, and 3 per cent. in Ireland. In 1918 the death-rate was 17·17 and the birth-rate 24·5 per 1000. But the latter figure is only a rough estimate, for birth registration has only been recently established, and in 1914 the reported births were 13,000 below the estimated. Accordingly, infantile death-rates are given in terms of total deaths, not of births. In 1918 14 per cent. of total deaths were under 1 year of age, which is 98 per 1000 of estimated births. The general death-rate, owing to the influenza epidemic, was the highest recorded since 1895, but infantile mortality was much less affected by the epidemic than the general mortality.

### *Functions of the Commissioner of Health.*

The office of Commissioner of Health differs materially from that of the English medical officer of heath. The commissioner is the administrative head of the Department of Health, and is charged with the enforcement of all laws of the State, ordinances of the city of Chicago, and all rules and regulations of the Department of Health relating to the sanitary condition of the city. Infectious hospitals, public baths, laundries, and other health institutions are under him, and he is authorised to publish information concerning his work, the health of the community, and methods of preventing diseases. He thus combines, as regards public health, the functions of health committee, town clerk, and Asylums Board, with those of medical officer of health, and exercises more arbitrary power than any of these. He is responsible only to the mayor. Under him are an Assistant Commissioner and seven distinct bureaux, dealing respectively with (1) general administration, education, and publicity; (2) municipal-laboratory; (3) medical inspection, including infectious disease, school hygiene, infant welfare, and day nurseries; (4) food inspection, with licensing of milk and food dealers; (5) birth and death registration and vital statistics; (6) sanitation, plumbing, housing, new buildings, public baths, and comfort stations; (7) isolation hospitals and ambulance service. Each bureau is under a bureau chief directly responsible to the Commissioner of Health. In addition to these bureaux which are directly under him, the Commissioner is the president or director of six correlated health agencies which work in coöperation with his department—viz., the Public Health Association, the Commission of Ventilation, the Tuberculosis Sanitarium, the Morals Commission, Board of Examiners of Plumbers, and Chicago School of Sanitary Instruction.

The Bureau of Vital Statistics controls funerals, undertakers, and cemeteries, and apparently depends more on this control than on the certificates of physicians for the reports of deaths. At any rate, statistics of deaths are said to have been complete since 1871.

For the control of infectious diseases the city is divided into 55 districts, with a health officer over each. He is required to inspect and quarantine all reported cases of diphtheria, scarlet fever, measles, mumps, and other infectious diseases. Cases of smallpox, typhoid fever, and infantile paralysis are at once removed to hospital and contacts kept under observation.

### *School Hygiene and Infant Welfare.*

School hygiene and infant welfare are not separated as in this country, but are both under an assistant bureau chief, who supervises the medical inspection of school children, open-air schools, and "open-window rooms"

* Report and Hand-book of the Department of Health of the City of Chicago for the years 1911 to 1918 inclusive. By John Dill Robertson, M.D., Commissioner of Health. House of Severinghaus, 2141-49, Ogden Avenue. 1919. Pp. 1535. $5.

at schools, the "field nursing service," the school dental service, and infant welfare service. There are 143 health officers, and about the same number of nurses, for the school work, or about one of each to every four schools. These school nurses during the two months' (July and August) school vacation help the Health Department nurses in health visiting. The work of the latter nurses appears to be similar to that of our health visitors. Each one has about a hundred infants under her care. The infants referred to her are those living in crowded districts, whose addresses are picked out from birth returns, and also bottle-fed infants and those confined by midwives. An average of 15 visits and re-visits is made in a day. There are four municipal infant consultation centres, and 22 under the Infant Welfare Society, but, says Dr. Robertson, 50 are needed. The object of both field and centre work is to keep well children well. Sick babies are only cared for in emergencies.

The Bureau of Food Inspection employs 77 food inspectors. All milk, cream, and ice-cream sold in the city must be either "inspected" or "pasteurised." "Inspected" means complying with a fixed standard of purity, which is seldom reached, so that pasteurisation is the rule.

The Bureau of Sanitation deals with nuisances and insanitary conditions, and for this purpose employs 2 supervising and 35 sanitary inspectors. The bureau also exercises sanitary control over the construction and alteration of buildings, and all plans for habitable buildings must be submitted to it for approval *re* lighting, ventilation, plumbing, and draining. There are 4 ventilation and 17 plumbing inspectors, and plumbing work must be carried out by men who have been licensed by the plumbers' board of examiners.

Dr. Robertson's report deals in considerable detail with the work of all the different bureaux. It also contains four special reports on tuberculosis, venereal disease, the 1918 epidemic of influenza, and two outbreaks of acute anterior poliomyelitis (infantile paralysis) in 1916 and 1917. A foreword gives a general résumé of the most important problems of Chicago's health, and the report concludes with a historical chronicle and fairly complete index.

*Water and Milk Problems.*

The health authority of Chicago, which now boasts of its being one of the healthiest cities of its class in the American continent, has had very great difficulties to contend with. The city was built on a plain slightly below the level of the lake of Michigan, and in order to make it possible to drain it by gravity the level of all buildings and streets had to be raised. This was done in 1855–6.

The problem of a pure water-supply has not yet been satisfactorily solved. The water is drawn from Lake Michigan, which is continually fouled by the sewage of suburban towns, by bathers, and by careless steamboat officers. Five per cent. of non-treated water as supplied to houses would contain colon bacilli unless treated by chlorination; by carrying out the chlorine process "the colon content has been reduced to two-tenths of one per cent. in one cubic centimetre." The process is carried out at the street pumping stations, but the risk of the failure of an employee to fulfil his duty naturally causes anxiety to the Health Commissioner, and he recommends that the water should be not only treated with chlorine but also filtered. It is, indeed, curious that the rich and mighty city of Chicago should be no better off in the treatment of its water-supply than an army in the field.

These observations recall the report of THE LANCET Special Sanitary Commission of Inquiry concerning the Water-supply of Chicago, undertaken prior to the convention of a World's Fair, when thousands of visitors were expected to attend. The results were published in THE LANCET of April 8th, 1893. The pollution of the Chicago River was proved by numerous analyses made in THE LANCET Laboratory of samples of water obtained and forwarded to us by a responsible representative in the city. The water as supplied to the consumer hardly showed a clean bill, particularly in regard to suspended matter, and it is rather surprising to learn that after more than a quarter of a century has elapsed the problem of a pure water-supply has not yet been satisfactorily solved. We suspect that one trouble at least arises out of the pollution caused by the drainage from the great stockyards of the city. This seemed to be the case with regard to the samples taken from the Chicago River, which served as a sewer, emptying directly into the lake. The work of analysis was under the control of Mr. (afterwards Sir) William Crookes, and later a series of articles appeared in our columns (the first of which was on Jan. 7th, 1905) from a Special Sanitary Commissioner of THE LANCET, who after visiting the St. Louis Exhibition took the opportunity while in the neighbouring State to investigate the Chicago stockyards and the condition of the abattoirs there. As his reports show, he was not favourably impressed with the sanitary regulations in force for the slaughter of the animals. His disclosures attracted considerable attention at the time and formed the text for a sensational novel.

Dr. Robertson appears to be satisfied with pasteurisation as the solution of the milk problem so long as this is efficient. By means of thorough inspection, rigid prosecution of offenders, and closing their establishments, he considers the attainment of efficient pasteurisation comparatively easy. Since "the practically perfect chlorination of its water and a complete pasteurisation of its milk we have not had a milk- or food-borne epidemic of any kind or description." The typhoid death-rate (0·01 in 1918) is the lowest in the large cities of the States.

*Epidemic Diseases.*

Small-pox occasioned two deaths in 1917 and two in 1918. Vaccination is enforced through the schools; every child is examined once a year, and children found inefficiently vaccinated are referred to the family physician for vaccination or vaccinated by the school doctor. Small-pox had been absent for some years, but an outbreak occurred in 1917 and 1918, chiefly among coloured labourers imported from the South. Scarlet fever is a much more serious disease in Chicago than in London and caused more deaths in recent years than either measles or whooping-cough. Diphtheria is even more fatal, causing in 1917 and 1918 more than twice as many deaths as scarlet fever. The tuberculosis death-rate has fallen since 1907 from 1·7 to 1·4 per 1000, and the cancer death-rate, as on this side of the Atlantic, has risen persistently, and was 0·90 in 1918. The tuberculosis problem seems to be much the same in the States as in England, and is being met in Chicago in much the same way—by sanatoriums and open-air propaganda.

*Tobacco and Opium Attacked.*

The health of a great city like Chicago continually presents new problems, and Dr. Robertson meets them undaunted as they arise. He has attacked nicotine by a successful request for the closing of "the dirty, filthy smoking compartments" on the railroads. He is now initiating a campaign against the abuse of opium, which he found was contained in 103,000 out of 400,000 prescriptions given in one month for influenza and pneumonia. President Wilson was asked that a stipulation should be made in the Peace Treaty for stopping the growth and importation of opium. Such an energetic reformer is bound to meet with opposition, and while congratulating Dr. Robertson on the fact that "a large majority of the aldermen have taken an active interest in the Department of Health" one would like to know more of the "very few instances" in which "they made improper requests of the Commissioner."

*Conclusion.*

The report is illustrated by a large number of the pictorial health posters in which the American excels. The vital statistics, too, are mainly presented in the form of pictorial and block charts, which are a little embarrassing for those searching for exact figures. But it is impossible in a short notice to deal with all the noteworthy features of this valuable report. Those who wish for interesting information on

placarding infected houses, detailed rules of quarantine, epidemics of influenza and infantile paralysis, a departmental "hearing board" for dealing with nuisance offences before prosecution, a system of promotion in the public health service by an elaborate scale of marks for ability, activity, reliability, &c., must be referred to the report itself, and we think they will not regret making fuller acquaintance with it. The total cost of the Chicago Department of Health in 1918 was $1,151,000, of which $430,000 were for the treatment and prevention of communicable diseases, and $240,000 for conservation of child-life.

Great Britain led the way in public health administration, but America has followed hard after us, and unless we imitate her courage in dealing with vested interests and in subordinating private privileges to public welfare, we shall soon have to take the second place.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*Ireland and the Medical Research Council.*

THE fact that, in the constitution of the new Medical Research Council, Ireland has been ignored is giving rise to comment in medical circles in this country. Ireland differs more in its social and health conditions from Great Britain than does Scotland from England, yet Scotland is, as is quite proper, represented on the Council. As each part of the kingdom contributes proportionately to the expenses of the Council, each should share in the advantages likely to accrue from its work. With the present constitution of the Council it is almost inevitable that problems of Irish importance will be overlooked. It is all the more important that there should be some one on the Council with special knowledge of Irish conditions in view of the fact that, whereas both England and Scotland have Ministries of Health which can press their interests, Ireland, although nominally possessing a Minister of Health, has as yet no Ministry. How actively the late Minister of Health for Ireland looked after her interests can be judged from his consenting to the constitution of the Research Council, without even, I understand, thinking it necessary to take the advice of the Irish Public Health Council, whose statutory duty it is to advise him in matters concerning the health of the country.

*Pathology and Research in Belfast.*

It is to be hoped that an arrangement may be made so as—following the example of Liverpool—to bring closer together the city of Belfast, in its public health aspects, and the University. This can be easily done by the latter supplying the Public Health Committee of the Belfast City Council with separate rooms in its pathological buildings, leaving the corporation to appoint its own officials, and making the professor of pathology and bacteriology the head and superintendent of the combined department. A joint meeting of the representatives of the Public Health Committee and of the University was held last week, and a deputation was appointed to place the above views before the City Council of Belfast.

*Charter Dinner at the Royal College of Surgeons in Ireland.*

On April 17th the President and Fellows of the Royal College of Surgeons in Ireland held their first Charter Day since 1914, the President, Mr. J. B. Story, in the chair. There was a large attendance of Fellows and guests, the latter including the Lord Chancellor of Ireland, the Provost of Trinity College, and Sir Archibald Geikie.

AT a meeting of the Torquay and District Anti-Vivisection Society, held recently, it was reported that little had been done during the past year owing largely to "lack of funds, interest, and enthusiasm, a kind of apathy having fallen on the branch since the war."

## NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

*Yellow Fever in India.*

THE Yellow Fever Committee appointed by the Government of India has arrived at unanimous conclusions regarding the measures which, in its opinion, should be adopted in order to keep the Peninsula free from infection by the disease. The stegomyia mosquito abounds in India, but it is easier to reduce the number of this species than it is to effect a reduction of the anopheles which transmits malaria, since the stegomyia generally breeds in and about houses, especially in vessels used for the storage of water. Lieutenant-Colonel S. P. James, who was deputed to the Government of India to report on the whole question of yellow fever prevention, urged that the provision of a constant high-pressure supply of water in the various sea-ports, which would render the storage of water unnecessary, should be the first step taken to reduce the stegomyia. In his opinion, if the policy of reducing stegomyia in the ports proved successful, it would ensure permanent safety against yellow fever. Other questions involved are the establishment of quarantine stations at the ports, and the securing of information from the countries in which yellow fever is endemic regarding the movement of the infection to the East. Colonel James held that the only satisfactory method of obtaining this information was to station permanently in the endemic area a medical officer who would be constantly in touch with the consular and quarantine officers of the United States and other countries. This officer in practice would be attached to the British Consulate at Panama, and it would be his duty to report promptly any new danger threatening the East. A second officer might be posted at Hong-Kong, and a third at Singapore. The American Government have for years followed the practice of attaching officers of their public health service to their consulates in the ports of foreign countries, and it has been apparently attended by very satisfactory results.

*Small-pox Preventive Measures in Calcutta.*

The health officer, Calcutta, in a note on the preventive measures to be used in the present epidemic in Calcutta, says the epidemics tend to occur every four or five years in the town. The present outbreak is as severe as the outbreak of 1915, if not worse. In 1915 there were 10,000 cases and 2500 deaths. If the present epidemic assumes similar proportions 50 to 100 contacts will have to be registered, for as only a small percentage of cases are treated in hospital, under the circumstances it will be well-nigh impossible to avoid exposure to infection. Accordingly a vigorous vaccination campaign has been started on a well-organised basis. Special arrangements are being made for the vaccination of University students and school children. The health officer refers to the provisions made for extra hospital accommodation and convalescent homes, and states that a large supply of medicated oil has been prepared and distributed free of charge.

*Leprosy in Cochin.*

The Cochin local government has decided to close the leper colony in Venduruthy Island, Malabar, established 300 years ago, and to transfer the inmates to Calicut Mission Leper Hospital.

*The All-India Medical Conference.*

The presidential address at the Third All-India Medical Conference was given by Dr. M. N. Ohdedar, who entered the profession from the Lahore Medical College in 1879. The dominant note of the address was struck from the beginning, when, in an allusion to the Committee on Reorganisation of the Medical Services in India, that body was called a "packed committee," on which the views of the provincial medical services and private practitioners were not represented, disappointment being expressed at the prospect of a continued preponderance of Indian Medical Service officers in civil medical appointments. It is well that British readers

should understand the native views on a very difficult point, and they were stated fully in the address. While special credit is allowed to the I.M.S. officers for the ability with which they have conducted the Medical Colleges in the country, it is claimed that "a large number of Indians have so well profited by the training imparted by these professors, and by their natural aptitude and desire to rise high in the profession, that they are in no way inferior to the average general practitioners in any country, while some will compare favourably with the best general practitioners anywhere." Exception is taken to the suggestion that medical degrees and qualifications in India do not in all cases represent the result of a complete medical education, such statements being logically regarded as "a strange commentary on the capabilities of the Indian Medical Service professors, by whom the Colleges in India have been wholly manned in the past, and are, to a very large extent, in the present."

With regard to the large number of Indian medical men engaged as temporary commissioned officers during the war, the President considered it matter for regret that only a small percentage are likely to be made permanent in the department; so long as officers of the R.A.M.C. are drafted into civil employ he urges that "the Association should make a vigorous representation, remembering that the child that does not cry gets very little attention." This remark is very apposite, but it can be read in a way which its author did not intend. Dr. Ohdedar went on to say: "It cannot be denied that the Medical Department in India is the only department in which the interests of the officers clash with those of their assistants and of the alumni of the medical colleges generally in this country; and it is owing to this stumbling block that the claims of Indian medical men for responsible posts have not yet been freely recognised." The thing that is of greatest importance is the efficiency of the Medical Service—that is, the care of the sick and the preservation of the health of the whole population, civil and military. To ensure this a contented body of officers of all grades is necessary, and, of course, every effort should be made to bring this about. Dr. Ohdedar frankly recognises "that the very high appointments in the Medical Department should for years to come be reserved for the officers of the Indian Medical Service, be they European or Indian," and his opinion is that "a great number of the civil surgeoncies and a good number of appointments in the sanitary and chemical departments might be well given to qualified natural-born Indian subjects of His Majesty with advantage both to the country and the finances of the Government of India." But when he goes on to say that "it is only when a man is not able to earn even as much as a panel doctor earns in his own country that he, nolens volens, accepts service in a foreign country," and to comment unfavourably on the scientific ability of the I.M.S. officers, he is talking nonsense, and nonsense which spoils some of his own best arguments. With regard to the selection to professorial appointments, everyone will agree that the very best men available should be appointed, whether European or Indian; also that they should not be liable to frequent transfers, and that they should be well paid. Dr. Ohdedar considers that at least half the professorial appointments should go to qualified Indians, paid adequately, and debarred from general private practice. He refers to the important researches that have been carried out by many members of the Indian medical profession in various parts of the country, and to the laborious "spade-work" of the "licensed medical practitioners" and "sub-assistant surgeons," which designations, he considers, should be abolished. But he is critical now and again of his own countrymen, as when he regrets that "many men in Government service should not have the ambition to distinguish themselves in surgical work; and that through fear of losing the insufficient pay they get, they should allow the I.M.S. officers without any protest to monopolise the whole of the important surgical work."

In conclusion, Dr. Ohdedar advocates the formation of an association in India, on the same lines as the British Medical Association, including medical men of all classes, that would carry on continuous propaganda work in a constitutional manner, "move the authorities to listen to the grievances of the locally trained men, whether in the service or out of it, and minimise the baneful influence that the British Medical Association has in the shaping of the medical policy of the Government of India."

*Home for Indian Children.*

Recently the foundation-stone was laid of the home for children at Matunga, near Bombay, to be built by the Society for the Protection of Children in Western India at a cost of Rs. 2,72,000. The Bombay corporation recently voted an annual recurring grant of Rs. 2500 and a building grant of Rs. 15,000 towards this institution.

*Retention of Rank in the I.M.S.*

An Army Instruction announces that it has been decided that the rules regarding the retention of rank contained in Army Order No. 376 of 1918 shall apply in the case of officers of the Indian Medical Service (whether holding temporary or permanent commissions) who have served satisfactorily during the war. This retention of rank will take the place of honorary rank granted hitherto.

## ADVERTISEMENTS IN THE MEDICAL PRESS.

AT a meeting of the Worcestershire County Council on April 24th the Chairman (Mr. Willis Bund) said that the Council would recollect that in connexion with the medical service scheme for the county they authorised advertisements for ten doctors at salaries of £450 each. They obtained two officers, and they then proposed to repeat the advertisement, but when they sent it to the *British Medical Journal* and *The Lancet* they received letters stating that advertisements could not be accepted which offered a less salary than £500 per annum for such posts. The chairman said that he also had a letter from the Ministry of Health stating that tuberculosis officers should have special qualifications and experience, and they doubted whether the salary offered (£450) would be sufficient. He said that he objected to this sort of pressure being put upon local authorities. (Hear, hear.) A matter like this was nearly more than they could bear. When they had got two gentlemen for £450, who, he thought, were very suitable for the posts, then they got these letters trying to prevent them getting any more. He did not quite know what to do in the matter. He felt very averse to allowing the medical press to dictate to them as to what salaries they should give. (Hear, hear.)

Dr. Dixey said that not only the Ministry of Health suggested that they would be unlikely to get officers of the calibre they desired at the salary they offered, but Dr. Fosbroke (the medical officer of health), in his report on the scheme, said that he was by no means certain that they would get thoroughly competent officers at £450. He hardly thought that the members of the Council would think that a salary of £500 was an extravagant sum, having regard to the cost of living, to be paid for a medical officer to do the amount of work that he had to do under the scheme. He would have to do the ordinary work of medical inspection of school children, and if they were going to get good results for the large amount of money they were going to spend on the scheme the officer must have some good knowledge and be a man who would be likely to do good work. The only alternative was to tell the Ministry of Health that they would not carry out the scheme. He proposed that the committee be authorised to advertise for eight assistant medical officers at a commencing salary of £500, rising to £600 per annum by annual instalments of £25; that the two medical officers appointed be placed on the same footing; and that the two senior assistants shall have special advisory functions, and shall receive a salary of £600 per annum, rising to £700 by annual instalments of £25. Dr. Dixey said that they had advertised for a dentist at a salary of £400. They had four applications. Three of them were not eligible, and one the committee thought would do and they agreed to appoint him, but he had sent a telegram that day stating that he declined the post. The speaker suggested that they should advertise for a dentist at a salary of £450. He hoped that the Council, who passed the full scheme and knew the necessity for it, would agree to the proposals. The net increase would be £650 a year, and half of that sum would be paid by the Board of Education, so that the total cost to the county would be £330.—Dr. F. W. J. Coaker seconded.

Mr. Millward said it was to him extraordinary that papers should take the position stated by the chairman. He was not satisfied that medical officers could not be obtained, and he moved that they advertise in other than the medical press—in some of the London daily papers.

The Vice-Chairman (Colonel Wheeler) seconded. He did not think that they should sit down under the treatment accorded to them by the medical press. He was not satisfied that they could not obtain the officers. After they had tried it would be time enough for them to consider whether they would give more or not. He could not help thinking that there were many young medical officers who would be glad to start at the figure of £450.

Dr. Dixey said that they advertised in the daily press at a crisis like that some years ago, and they got no answer.

Mr. H. C. Gardner: I do not think that is so.

The Chairman: I think we got some answers, though we did not appoint anyone.

Mr. G. E. Wilson said that this was not a new policy on the part of the medical press. The Council advertised in vain for medical officers for the asylum some years ago at a figure that was not considered a reasonable figure.

Mr. C. Dalley said that they would be unwise to play with this matter. They wanted medical men, and they would have to pay the price demanded. £500 a year for a trained medical man was not an extravagant sum.

Dr. L. C. S. Broughton asked the Council what sort of a medical man they hoped to get for £450 a year? There was a very serious shortage of doctors, which would be felt more in three or four years' time than to-day. The medical papers were simply standing out for a respectable salary for a highly trained medical officer. He was rather amused to hear Mr. Millward say that he thought that they could get doctors by advertising elsewhere than in the medical papers. He hoped that they would advertise and that they would get a doctor, and he hoped that they would be glad of him when they got him.

The amendment to advertise in the daily press was carried by 34 votes to 23.

## URBAN VITAL STATISTICS.

(Week ended April 24th, 1920.)

*English and Welsh Towns.*—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18·7 to 15·8 in the four preceding weeks, further fell to 14·5 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 14·2, or 1·9 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 3·5 in Wimbledon, 5·0 in Ealing, and 7·1 in Wallasey, to 23·3 in Newport (Mon.), 24·4 in Blackburn, and 26·1 in Halifax. The principal epidemic diseases caused 354 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 145 from measles, 85 from whooping-cough, 55 from infantile diarrhœa, 42 from diphtheria, 18 from scarlet fever, 7 from enteric fever, and 2 from small-pox. Measles caused a death-rate of 2·1 Stockport, 2·4 in Brighton, 2·9 in Rhondda, 4·2 in Wigan, and 4·8 in Newport (Mon.); scarlet fever of 1·1 in Stoke-on-Trent; and whooping-cough of 4·1 in Darlington. One death from small-pox belonged to Liverpool, while the second (a Norwegian seaman) occurred at the Metropolitan Asylums Board's Shelter in Bermondsey. The deaths from influenza, which had declined from 392 to 306 in the four preceding weeks, further fell to 259, and included 59 in London, 11 each in Birmingham and Liverpool, 10 in Sheffield, and 9 in Blackburn. There were 1965 cases of diphtheria, 1845 of scarlet fever, and 23 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1958, 1904, and 24 respectively at the end of the previous week. The causes of 28 of the 4967 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham.

*Scotch Towns.*—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 17·2, 17·3, and 18·9 in the three preceding weeks, further rose to 19·2 per 1000. The 410 deaths in Glasgow corresponded to an annual rate of 19·2 per 1000, and included 31 from influenza, 20 from measles, 7 from infantile diarrhœa, 4 from whooping-cough, 3 each from small-pox and diphtheria, and 1 each from enteric fever and scarlet fever. The 94 deaths in Edinburgh were equal to a rate of 14·4 per 1000, and included 4 from influenza and 2 each from measles and diphtheria.

*Irish Towns.*—The 227 deaths in Dublin corresponded to an annual rate of 28·5, or 3·0 per 1000 below that recorded in the previous week, and included 9 each from measles and whooping-cough, 5 from influenza, and 2 from infantile diarrhœa. The 219 deaths in Belfast were equal to a rate of 27·6 per 1000, and included 13 from influenza, 5 from infantile diarrhœa, and 1 from measles.

# Correspondence.

"Audi alteram partem."

## THE RELATION OF GENERAL MEDICINE TO OPHTHALMOLOGY.

*To the Editor of* THE LANCET.

SIR,—The Ophthalmological Society is discussing this week the relation of diseases of the eye to certain general morbid conditions. I should like to recall the meeting of the Ophthalmological Section of the Royal Society of Medicine, held on Dec. 3rd last, when a discussion was introduced by Dr. Rayner D. Batten[1] on the relation of general medicine to ophthalmology. His suggestion, which received a certain amount of support, was that there should be ophthalmic physicians as well as ophthalmic surgeons. He pointed out what advantages there would be to the ophthalmic surgeon from such an arrangement.

I do not think it would help the ophthalmic surgeon in the least. So far as he is concerned there is no use for the ophthalmic physician; any coöperation between the two would be, as it always has been, of greater assistance to medicine than to ophthalmology. Some 30 years ago ophthalmologists began to have an inkling that defects of vision were responsible for general conditions of health, and, on the other hand, that general conditions had a considerable share in causing eye trouble; I do not think that physicians and general practitioners at that time were alive to the connexion.

One of the first conclusions arrived at by ophthalmologists was the rôle played by anomalies of refraction in the causation of headache, and in or about 1888 two papers were written on ocular headache, one by Mr. Brudenell Carter, the other by myself, and possibly some by other ophthalmologists. Mr. Carter said that many children in schools were dull and listless and complained of their heads, and there was difficulty in teaching them; they were thought to be stupid. Mr. Carter's comment was that "the stupidity was entirely on the part of the teachers."

In my own paper I reported some well-marked cases of eye headaches with remarks upon them. These cases are only examples of thousands which come under the treatment of the ophthalmic surgeon, and of which, till a comparatively short time ago, the rest of the medical profession had no knowledge; where, then, do the physicians come in? Physicians and general practitioners knew nothing of ocular headache until its existence was pointed out by the ophthalmic surgeons. I may say that when the profession did become alive to the fact that eye trouble was a common cause of headache (that was after the publication of papers calling attention to it in 1888), the number of cases of headache treated by ophthalmic surgeons increased very considerably. To prove this I give the number of cases that consulted me for headaches at different periods. Between October, 1887, and October, 1888, among 512 cases there were 28 who complained of headache. This was about the commencement of the period of enlightenment. Before this date, between July, 1885, and September, 1886, among 493 there were 10 cases of headache. This was before the ophthalmic surgeons knew much about ocular headaches. Later, between April, 1892, and May, 1893, among 506 cases there were 44. By this time eye trouble was under suspicion in cases of headache. Between June, 1900, and April, 1901, among 506 cases there were 75. The ocular cause of headache had become known not only in the profession but by the public generally. Had the profession only appreciated this cause 30 years ago what an enormous amount of inconvenience and even suffering might have been prevented.

[1] THE LANCET, 1919, ii., 962.

There is another class of case of which a number, after having been treated by medical men for long periods, eventually seek the advice of an ophthalmic surgeon. These are cases of what may be called sore eyes. There may be slight conjunctivitis, lacrymation, redness and slight swelling of the edges of the lids, especially in the morning after sleep, and a sense of general discomfort. Lotions of all sorts have been used without any result. The ophthalmic surgeon almost invariably finds some slight error of refraction, generally a low degree of astigmatism. He orders suitable glasses and tells the patient to continue any one of the lotions he has already been using; recovery very soon takes place. There are quite a number of cases of Bright's disease which have never been discovered until the patient's sight has become affected and he consults an ophthalmic surgeon, either on his own account or by the advice of his medical attendant. The ophthalmic surgeon examines him with the ophthalmoscope and finds albuminuric retinitis, which means that the disease has been going on, perhaps for years, undetected and untreated; moreover, albuminuric retinitis is a late symptom and its occurrence is a sign that the patient is approaching his end. This is another instance of assistance given to medicine by ophthalmology.

Another class of cases in which the cause of eye trouble is often discovered when the patient consults an ophthalmic surgeon is a condition of general sepsis; the eye trouble need not necessarily be septic, though cases of septic inflammation of the eye do occur, but there is more often some interference with sight and want of power to use the eye without any very apparent cause. The ophthalmic surgeon finds weakness of accommodation and perhaps a slight error of refraction of which the patient was unaware whilst he was in good health; but having become weakened by septic infection from some self-contained cesspool he is troubled by what had previously been no inconvenience. A little inquiry will generally discover the cause, but whatever the cause may be it is the ophthalmologist who makes the discovery, not the practitioner of medicine, and he advises the patient to consult the dentist, nose and throat specialist, or general surgeon, with the result that the cesspool is drained or removed and the patient recovers. Other sources of infection allied to sepsis are gonorrhœal or syphilitic virus, which every medical man knows are the main causes of iritis and many other affections of the eye; but I do not think that the profession at large is aware that gonorrhœal infection is by far the most common cause of iritis, and responsible for all the most severe and troublesome cases. Nor do I think that general medicine will enlighten them on the subject. Iritis has from time to time been divided into many varieties, but I think (and fancy that a good many ophthalmologists are of the same opinion) that at least 95 per cent. of cases of iritis are gonorrhœal or syphilitic, and there are some mixtures of the two.

Many nerve cases in their early stages are discovered by ophthalmologists. The patients may have consulted a medical man only because they had noticed something wrong with their eyes, and may then have been advised to go to an ophthalmic surgeon. Here again ophthalmology comes to the aid of medicine. The ophthalmic surgeon discovers possibly something serious, such as double neuro-retinitis or wasting of the optic nerves. But not unfrequently it is something very slight of which little or no notice has been taken by the doctor, such as slight diplopia. It may mean nothing, but, on the other hand, it may be the first symptom of serious nerve trouble.

I could give many instances in which medicine has been helped by ophthalmology, but think I have said enough. There is no place for the ophthalmic physician, and what the ophthalmologist does not know of medicine as it concerns his specialty no one else is likely to teach him.

I am, Sirs, yours faithfully,

CHARLES HIGGENS, F.R.C.S.

Brook-street, W., April 5th, 1920.

## AN UNUSUAL FOREIGN BODY IN THE EAR.

*To the Editor of* THE LANCET.

SIR,—On April 4th a constable came to me at the City of London Police Hospital complaining of deafness and occasional pain in his left ear. On examination I saw a black glistening plug which I took to be impacted cerumen; the right ear was clear. I directed him to put almond oil into the ear and come up for syringing in two or three days. He came on the 6th and a nurse syringed the ear without result. He saw me at midday and I again syringed the ear and, after some rather forceful syringing, the plug moved outwards and I was able to help it out with the nozzle of the syringe, when it proved to be a beetle. When I announced this result the constable informed me that about 18 months previously he was in France, and sleeping on the ground under canvas. He awoke one morning and felt a tickling sensation in his left ear. He pushed his finger in and felt some squashing of an insect and the thing seemed to crawl right in; some blood (presumably the beetle's) came out of his ear. He went to the medical orderly in agony, and he put something into the ear and told him he must have had a boil or something of the sort, and what he took to be an insect crawling must have been due to the blood trickling when it burst. The orderly syringed the ear twice; and on some later occasion he saw another orderly, who syringed it again, but he never saw a doctor till he came to me. After removal of the insect the ear was clear, and he said he could hear properly again, and beyond some local redness about the handle of the malleus I detected nothing abnormal.

The beetle was singularly well preserved, legs, antennæ, and case being complete. I took it to Professor A. Keith at the Royal College of Surgeons, and have received the following from him: "We had to send your beetle to the British Museum to be identified. His name is on annexed slip with the identification. He is a native of France. His length is 19 mm. and he is 7 mm. wide. We are keen on keeping the beetle and showing it in our Foreign Body series." On the slip was: "*Carabus convexus*. Fab.—Carabidæ—predaceous beetles—feeding on insects, larvæ, &c., and on worms. *C. convexus* does not occur in Britain.—C. Gahan, Keeper of Entomology, B.M."

I am, Sir, yours faithfully,

A. P. GIBBONS, M.B. Lond., &c.,

April 26th, 1920. Surgeon to the City of London Police.

## LICE AS A CAUSE OF RINGWORM.

*To the Editor of* THE LANCET.

SIR,—About the year 1909 I began to suspect some causal relationship between lice and ringworm of the head. At that time I was examining some hundreds of cases of ringworm per week, and the more I saw of the disease the more convinced I became that my suspicions were well founded. In the majority of the cases examined I found either lice or the eggs of lice present. In the minority of the cases, where the actual presence of lice or nits could not be demonstrated, it was generally admitted by the parents that their children had recently suffered from lice or nits. The number of cases where no such history could be obtained was so small as to be almost negligible.

The fact that ringworm is most common in the elementary schools, much less frequent in secondary schools, and of fairly rare occurrence amongst children in public or high schools in the country, is, I think, incontrovertible. Why, then, should the disease attack in this special order of frequency, and what causal factor is there which corresponds? The presence of lice and their eggs follow exactly the same distribution—that is, they are found rarely, and then only sporadically, amongst public and high school children, to some extent in the secondary schools, and quite commonly in the elementary schools. Considering the presence of two conditions identical in distribution, I proceeded to make cultures from the hairs infected by ringworm

fungus, from lice found on ringworm heads, and from lice on heads which were not infected by ringworm. The results were such as to confirm my earlier suspicion, for from ringworm hair and lice from infected heads I grew ringworm (Sabouraud's media), but not from the lice of non-infected heads.

These experiments extended over a prolonged period of time and were considerable in number. From the results obtained I came to the conclusion that infected lice provide one means for the transference of ringworm from one child to another.

I do not suggest that the louse acts as a host in the usual acceptation of the term, or that there is any cycle of change, but I do suggest that the fungus is carried on the body or extremities of the louse, which is thus merely a direct carrier.

I do not wish to exclude direct infection from one child to another; this probably does occur, but in quite a small percentage of cases. Whilst I was making these researches the war broke out, and unfortunately my notes and data have been lost or destroyed. My object, however, in bringing the meagre facts to the notice of the profession is that others who have laboratories and the necessary time may carry these investigations further. My experience of school medical work suggests that the incidence of ringworm will lessen as the warfare on lice continues to be rigorously carried on.

I am, Sir, yours faithfully,

ALGERNON E. L. WEAR,
School Medical Officer, Leeds.

April 26th, 1920.

## THE DIAGNOSIS OF MALARIA.

*To the Editor of* THE LANCET.

SIR,—I should like to make a few remarks in connexion with Colonel Mathew D. O'Connell's letter on the Diagnosis of Malaria, which appeared in your issue of Feb. 28th. I regret that my absence from England has precluded me from writing this note earlier.

So far as the army in India is concerned, it is only after many years of continuous effort that we have established microscopical examination of the blood as a routine measure in all military hospitals in cases of pyrexia, both in cantonments and in the field. It is impossible to exaggerate the enormous advantage to the health of the troops that has resulted from this practice. The statistics given in the Reports of the Sanitary Commissioner with the Government of India indicate the extent to which malaria has undergone reduction in the army in India during the last 20 years, and this is due, at least partly, to the more accurate and definite diagnosis of malaria by microscopical examination of the blood.

From experience in the field as an administrative medical officer I know that carrying out blood examinations properly in all field ambulances and general hospitals is an exceedingly difficult undertaking, but every effort has to be made to see that it is done. The war has taught us much, and it is inconceivable that at the present day our Home or Indian Government would send an army into a malarious country without an efficient staff of medical officers and subordinates capable of carrying out blood examinations and the means of doing so. Blood examinations by the microscope are of special value in diagnosis in India, where we meet with several varieties of fever; during these examinations we at times unexpectedly come across parasites other than those of malaria. For example, in the recent Afghan campaign, in one Indian general hospital three cases of relapsing fever were so discovered, and in the epidemic of relapsing fever in Meerut in 1917 several cases diagnosed as malaria initially were found to be relapsing fever, and some years ago I remember Lieutenant-Colonel C. Dawes, I.M.S., showing me a case in Lansdowne which was thought to be malaria, but in which *Spirochæta carteri* was found in the blood. Dr. Philip Manson-Bahr refers to similar cases in his letter on the same subject in your issue of March 13th. In passing I would take the liberty of endorsing all that is stated by that talented writer in the letter referred to.

Our present methods of microscopical examination of the blood undoubtedly fail to diagnose malarial infection in a certain proportion of cases in which it is present, but I hold that this demonstrates the necessity of improving our methods rather than doing away with them. We are in India in possession of abundant evidence pointing to the necessity for more continuous examination of the blood for parasites in fevers of unknown origin in malarious stations and in the field. Let me quote one group of facts in support of this statement. In the Burma Division up to August, 1911, a large percentage of "fever" cases were returned as "pyrexia of uncertain origin," the practice being to rely upon a single examination of a stained blood smear for malarial parasites. From that month onwards daily microscopical examinations of the blood in all cases of undiagnosed pyrexia were carried out, quinine being withheld until parasites were found in the peripheral blood. Over 9000 slides were examined in connexion with 715 infections. In one case parasites were not found until the eighth day, in 2 on the seventh day, in 5 on the sixth day and 4 on the fifth day, in 11 on the fourth day and 43 on the third day, in 127 on the second day, the remainder on the first day; in other words, in a high percentage of proved malarial infections parasites were stated to be absent during the first paroxysms. In two Indian battalions quartered in Mandalay, which used to be a very malarious cantonment, six months after the adoption of this change the place of practically all the cases of fever of uncertain origin was taken by malaria in the returns. A similar series of facts was recorded in the 6th (Poona) Division in the last quarter of 1913, although these latter observations were not pushed to such a completely logical conclusion as those of the Burma Division.

The records of our military hospitals in India show that frequently malarial parasites are not found in the peripheral blood during malarial paroxysms. The chief reason given for the failure to find parasites is that the patients are at the time taking quinine either prophylactically or curatively. Personally, I consider that when malarial parasites are in sufficient numbers in the blood to give rise to malarial paroxysms they can in the vast majority of cases be found in the peripheral blood, especially if the thick-film method be employed and quinine be withheld temporarily.

The practice of giving quinine in cases where malarial parasites have been definitely shown by repeated microscopical examination of the blood to be absent is, I believe, therapeutically unsound. One great disadvantage of giving quinine in cases of doubtful fever is that after its use the diagnosis of the case may never be cleared up. When all evidence shows that there are no malarial parasites in the peripheral blood, abstaining from giving quinine can do no serious harm to the patient in the vast majority of cases. It may sometimes happen that the disuse of quinine in such cases for some days enables the diagnosis to be settled by parasites appearing in the surface blood. Although we know that quinine is a specific in a large proportion of cases of malarial infection, the fact that it brings about the disappearance of pyrexial phenomena does not prove that the fever is malarial. Quinine is an antipyretic apart from its plasmocidal properties. It is considered that as a routine practice no case of fever should get quinine until malarial parasites or other changes in the blood indicate that the case is one of malarial fever or that the clinical manifestations are definitely those of malarial paroxysms.

It has never come to my knowledge that abstaining from giving quinine in doubtful cases of fever while the diagnosis was being cleared up has been injurious to the patient. Nevertheless, we cannot alienate the responsibility of the officer who is treating the case, and he must decide for himself whether quinine is to be given in any particular doubtful case or not.

In the Burma Division in all cases of P.U.O. a blood examination for malarial parasites consisted of the following carried out on three consecutive days: (*a*) Examination of two stained smears; (*b*) examination of two fresh films; (*c*) examination of a stained thick film; (*d*) examination for pigmented leucocytes; (*e*) a large mononuclear count. The first two will

usually be sufficient, and where negative for three consecutive days malarial infection might be eliminated. A positive result, of course, removes the necessity for further microscopical blood examinations as regards diagnosis. It was directed that quinine should be withheld, except in cases where the clinical manifestations were obviously of a malarial nature and serious in character.

It is admitted that the course adopted was rather a large undertaking and involved much antecedent preparation. Assistant surgeons and sub-assistant surgeons were sent for courses of special malarial training, more microscopes were obtained, and one or more assistant surgeons or sub-assistant surgeons in every hospital were taught to examine the blood systematically. The results were beyond all expectations. The P.U.O.'s, which previously ranged from 60 to 80 per cent. of cases admitted with clinical manifestations of pyrexia, were reduced in two stations out of ten to nil, and in no station exceeded 10 per cent. These observations were closely watched and checked by myself and my D.A.D.M.S. (Sanitary), Lieutenant-Colonel Tilbury-Brown, D.S.O., R.A.M.C.

It is of the greatest importance to the individual patient to know whether he is or is not suffering from malarial infection. If he is he must take a curative course of quinine to eradicate the infection. Those of us who have been obliged to go through this regime know that it is no trifling undertaking, and it is downright cruelty to subject anyone to it unnecessarily—that is, without a positive diagnosis.

A valuable and important practical point has been brought out by Colonel O'Connell's letter that more scientific work should be done with the view to perfecting our means of finding malarial parasites in cases of malarial infection in which our present methods are insufficient. The thick film of Ronald Ross is a great help, but fails in a certain proportion of cases. One expected something in this direction to be developed from the Bass-John method of centrifuging the blood in malaria; up to date, anyhow in India, it has been of scientific interest only, whilst it is quite impracticable in the field. I should be reluctant to believe that with so many highly trained experts in malaria in the British Empire some simple method could not be devised of tiding us over the difficulties connected with the small proportion of malarial cases in which at present the diagnosis cannot be definitely determined microscopically.

I am, Sir, yours faithfully,

P. HEHIR,
Major-General, I.M.S. (ret.).

Salerno, Italy, April 10th, 1920.

## AN ANGLO-AMERICAN LIBRARY FOR CENTRAL EUROPE.

*To the Editor of* THE LANCET.

SIR,—In your issue of April 17th, you published the gist of a document issued under the auspices of the British and American members of the Society of Friends, and having as trustees Professor Gilbert Murray, Mr. Arnold S. Rowntree, and the Rev. Canon William Temple, setting forth the need of intellectual workers and teachers in the universities of Central Europe for English and American books on philosophy, science, and literature. In order to meet this need the promoters of the scheme propose to establish "in Central Europe under British-American auspices, one or more libraries of recent English books indispensable to university teachers." Such books at present cannot be obtained in Central Europe except at exorbitant prices, and, as a consequence, scholars in these countries find themselves cut off from access to books printed in English since 1914, which means that intellectual workers are deprived of indispensable tools. There is, we are reminded, "a hunger of the mind" as well as of the body.

At first sight it would seem more fitting that the British and American nations should devote their energies to healing the wounds and binding up the sores of their allies France and Belgium, for both these countries are in part or in whole blasted with war, and the damage to the great library of Louvain University caused by the apostles of Kultur is in great part irreparable. But on second thoughts it becomes plain that they that are whole do not need a physician, but they that are sick. France and Belgium are nations who have within themselves the essentials of civilisation and are in touch with the thoughts and ideals of both Western Europe and the United States, whereas the nations of Central Europe not alone before the war, but during its course, and even now that it is over showed and show themselves either ignorant of or oblivious to the ideals of civilised nations. If the provision of British and American books can drive into the hearts of German professors such elements of morals as that it is well for a country to keep its plighted word, that the wanton destruction of a library or of a great monument of human intellect such as the cathedrals of Malines or Rheims is a sin against the light, then we may hope that those whom they teach who are suffering from "a hunger of the mind and soul as well as of the body," will begin to realise the meaning of the words, "Blessed are they that hunger and thirst after righteousness for they shall be filled."

The promoters of the scheme say in their circular, "The reconciliation amongst the peoples can only come through the cultivation of mind and spirit, and it is clear that the great teachers of the world, by the free interchange of ideas, must be the leaders in such an endeavour." We may be allowed to doubt whether there are any great teachers of the world to-day, great, that is, in the sense in which Newton, Pascal, Laplace, Kant, William Herschell, Faraday, Ludwig, and Osler were great, but it is to be hoped that the English and American Society of Friends, whose members have done such admirable work in restoring the waste places of France and Belgium, will be able to sow the seeds of the humanities and to illumine the dark places of Central European thought with the light of modern British and American thought. Books have ever, since they began to be written, been the delight of cultivated minds, and the great thinkers of the world have left on record the praise of books; the panegyric of Cicero, with which he astonished the courts in an action of contested citizenship, is still one of the great passages of literature, even as Mackail says, "the abiding motto and blason of literature itself." Such studies, says Cicero, "occupy our youth, divert our old age, embellish the times of our weal, offer refuge and consolation in time of woe, delight us at home and do not stand in our way in public life, pass with us the night watches, travel with us abroad, are with us in the country." Such is the praise of books, but many years before Cicero a greater mind still had seen that books are not everything. In his dialogue "Phædrus," Plato makes Socrates say that "only in principles of justice, and goodness, and nobility taught and communicated orally and written in the soul, which is the true way of writing, is there clearness and perfection, and seriousness." An old and famous paradox says, "Knowledge cannot be taught." It may be that the fire of war has begun to purge out the old megalomania from the Central European Empires, and that the provision of books will enable teachers of those countries to appreciate right thinking. Forgiveness of enemies is a Christian duty, but forgiveness connotes repentance on the part of the enemy, and at present there is little sign of this. Still, the experiment is worth trying.

I am, Sir, yours faithfully,

H. P. C.

April 23rd, 1920.

SMALL-POX IN GLASGOW.—A mild outbreak of small-pox has occurred in Glasgow during the last few weeks. The first cases were noted early in March, and to date there have been 28 admissions to hospital. A great majority of the patients are children. In view of the steady decrease of infantile vaccination, it is estimated that not more than half the children born are protected, as against a proportion of 84 per cent. prior to the Vaccination Act, 1907. Special arrangements have therefore been made to provide and encourage vaccination among the unprotected, and the response has so far been satisfactory. In view of the prevalence of small-pox the corporation have resolved that cases of chicken-pox are to be notifiable from May 1st until July 31st.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

Surgeon Rear-Admiral A. G. Wildey is placed on the retired list.

F. R. McCambley is granted a commission as Surgeon-Lieutenant (D.).

## ARMY MEDICAL SERVICE.

### TERRITORIAL FORCE RESERVE.

Col. S. S. Hoyland, having attained the age limit, is retired, and retains his rank, with permission to wear the prescribed uniform.

## ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. J. H. Brunskill retires on retired pay.

Lieut.-Col. F. S. Penny relinquishes the temporary rank of Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major L. A. A. Andrews; Major and Bt. Lieut.-Col. C. R. Sylvester-Bradley; Temp. Major W. H. G. Aspland; Temp. Capt. J. F. Robertson.

Major E. B. Lathbury, O.B.E., to be acting Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Major: Capt. and Bt. Major W. F. Christie; Capts. R. S. Cumming, H. Bedingfield; Temp. Capts. A. E. Atkinson, M. Bates, A. Grant, F. R. Sturridge, H. G. Kilner, N. E. Kendall.

To be acting Majors: Capt. D. H. C. MacArthur; Temp. Capt. C. R. B. Von Braun.

Capt. A. L. Aymer resigns his commission and is granted the rank of Major.

Officers relinquishing their commissions:—Temporary Captains granted the rank of Major: A. Grant, J. A. Mackenzie (acting Major), W. C. Sharpe. Temporary Captains retaining the rank of Captain: F. G. Cross, K. R. C. Hallowes, F. E. Sprawson, J. S. Martin, W. L. Thomas, H. O'H. O'Neill, W. I. Adams, E. G. Grove, H. J. Knox, F. A. Ross, T. F. Lumb, E. Sakoschansky, E. Lewis, W. Bannatyne, W. Boyd.

### SPECIAL RESERVE OF OFFICERS.

Capt. C. Lovell relinquishes the temporary rank of Major.

Captains relinquishing the acting rank of Major: G. H. Stevenson, J. A. Hill, J. A. Stewart.

Capt. C. A. McGuire relinquishes his commission and retains the rank of Captain.

### TERRITORIAL FORCE.

Major (acting Lieut.-Col.) T. L. Fennell relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. J. B. Bate is seconded under para. 112 T.F. Regulations.

Capt. F. W. K. Tough to be Major.

Capt. (acting Major) W. T. Harkness relinquishes the acting rank of Major on ceasing to be specially employed.

1st Northern General Hospital: Major (acting Lieut.-Col.) D. W. Patterson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

### TERRITORIAL FORCE RESERVE.

Major W. Kirkpatrick, from 1st Southern General Hospital, to be Lieutenant-Colonel.

## ROYAL AIR FORCE.

*Medical Branch.*—The undermentioned are transferred to the unemployed list: Capts. J. P. Hennessy, J. Ferguson, R. W. Pritchard, C. F. Eminson, H. L. H. Greer, W. Lumley, D. J. Cannon, M. Hyman; Lieut. R. H. Parry.

## INDIA AND THE INDIAN MEDICAL SERVICES.

Lieut.-Col. Sarbadhicary has been elected a Fellow of the Calcutta University. Major R. E. Wright, Bacteriology Department, has been posted to Madras. Capt. P. J. Edmunds is appointed Physician, Wireless Branch, India Telegraphs. Lieut.-Col. G. T. Birdwood, civil surgeon, Lucknow, has been granted privilege leave combined with furlough on full average salary for the total of eight months. Lieut.-Col. L. G. Fischer, civil surgeon, Dehra Dun, has been granted privilege leave. Major J. T. Parkinson, officiating superintendent, Bareilly Central Jail, has one month's leave. Lieut.-Col. J. C. H. Leicester has been appointed permanently Professor of Midwifery, Medical College, Calcutta. Capt. E. S. Phipson has been confirmed as Health Officer, Simla.

---

**THE Society of Apothecaries of London has subscribed £10 10s. to the Keats Memorial Fund. The poet was one of the earliest licentiates of the society; having been examined by the well-known Dr. Brunde, he qualified in 1816.**

# Obituary.

## THOMAS JACKSON, B.A. LOND., M.R.C.S., J.P.,

CORONER FOR CROYDON.

THE death of Dr. Thomas Jackson, of Thornton Heath, will be felt by a wide circle. Born at Torrington, Devon, in 1846, he was educated at his father's private school and then at New College, Hampstead, to become a Congregational minister, taking his B.A. Lond. in 1867. Soon afterwards he decided for a medical career, studying at the Middlesex Hospital, from which in 1877 he qualified L.S.A. and L.R.C.P. Edin., and M.R.C.S. Eng. in the following year. After serving as resident obstetric officer at his hospital he settled in practice at Thornton Heath, and at once made his mark as a citizen. He was one of the first aldermen for the newly-formed county borough of Croydon, and sat on the first bench of borough magistrates. But it is as coroner that he will be best remembered. From 1889 when he was appointed, until the day of his death, on only a single occasion was the necessity of holding an inquest ordered by him called in question, and subsequent events then proved his judgment to be correct.

A colleague sums up his character thus: He was a man of varied interests, a great lover of gardening, a fine conversationalist, a keen politician, a scholar, full of humanity and kindliness, his outstanding characteristic being his sane outlook on life. The smile of the man was a benediction, but if that suave manner misled a witness at an inquest into thinking he had a soft proposition to deal with he soon discovered his error.

Of Dr. Jackson's other civic activities it may be mentioned that he was instrumental in securing Grange Park for his fellow citizens as a recreation ground, and in the establishment of the Polytechnic and the Free Library. He was the founder of the Croydon Ratepayers' Association, and an unfailing supporter of the Liberal party in a constituency which has never returned a Liberal Member to Parliament.

# Medical News.

**UNIVERSITY OF CAMBRIDGE.—The following candidates have satisfied the examiners in both parts of the Examination in Sanitary Science:—**

Alured Charles Lowther O'Shea Bilderbeck, James Brown, William George Clark, Margharita Mary Lamont Couper, Henry Speldewinde de Boer, Eric Alfred Fiddian, Alexander Fraser, George Makinson Heydon, George Gordon Johnstone, *John Burman Lowe, Peter Alexander McCallum, Jessie Brown Maclachlan, Philip Sydney Marshall, William Percival Mulligan, Albert Rutherford Paterson, Dawson Cameron Robertson, John Bevil Grenville Skelton, Victor Farrar Soothill, and *Meredith Blake Robson Swann.

* Distinguished in the Application of Sanitary Science.

**UNIVERSITY OF GLASGOW.—The following degrees were conferred on April 20th:—**

*Doctor of Medicine* (*M.D.*).—Daisy Annabella Murdoch Clark (Mrs. Gale) (with commendation).

*Doctor of Science* (*D.Sc.*).—John William McNee and John Boyd Orr.

*Bachelor of Medicine and Bachelor of Surgery* (*M.B., Ch.B.*).—Alexander Mitchell Beaton, Alexander Kidd Begg, John William Stewart Blacklock (with honours), Richard Ryther Stancer Bowker, Archibald Donald Brown (with commendation), Annie Burns Cameron, John Parker Chisholm, George Michael Cooper, William Norman Duguid, Robert Fletcher, Thomas Fletcher, Robert Adam Forsyth, Robert Gold Howat (with commendation), Thomas Downie Hunter, George Jamieson, Chung Un Lee, Barnett Levine, Alexander M'Cheyne Macintosh, Peter Alexander Mackay (with commendation), William M'Kendrick, John M'Kean Maxton, John Spence Meighan, Marjorie Mitchell, Thomas Fraser Noble, Peter Crawford Rankin, Robert Scott Reid, Joseph Sachs, Marguerite Linck Sclanders, Cecilia Shiskin, Thomas Stewart Stirling, Alexander Strang, Herbert Arnold Summers, John Leonard Turpie, and John Dora Williamson

**AT the meeting of the Medico-Psychological Association of Great Britain and Ireland, on May 20th, the First Maudsley Memorial Lecture will be delivered by Sir James Crichton-Browne, at 3.30 P.M., at the Royal Society of Medicine.**

**Ancoats Hospital, Manchester, is making an** appeal to the public. Of the £50,000 needed to build and equip a nurses' home and pay off an overdraft of £9000, so far £13,555 have been promised.

CLEANSING OF SHELL-FISH.—**At the last meeting** of the Exeter port sanitary authority it was reported that the Ministry of Health had promised to provide tanks for the cleansing of shell-fish in the Exe estuary.

THE 48TH GENERAL HOSPITAL, SALONIKA.—**The** opening of this hospital is to be commemorated by the holding of a dinner in London on June 24th. Officers who have been connected with the unit are asked to communicate with Dr. B. Holroyd Slater, St. Luke's Hospital, Bradford.

MEDICO-LEGAL SOCIETY.—**A meeting of this** society will be held at 11, Chandos-street, London, W., to-day, Friday, April 30th, at 8.30 P.M., when a paper will be read by Dr. Mackenzie Wallis, on the Purity of Ether and Chloroform in its Relation to Anæsthesia, and specimens will be shown by Dr. B. H. Spilsbury.

RONTGEN SOCIETY.—**A special general meeting of** this society will be held on Tuesday, May 4th, at 8.15 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W. A paper on Some Problems in the Action of Radiation upon Tissues will be read by Professor Sidney Russ, the President, and demonstrations on the transmission of speech by light and on a new portable viewing lantern will be given by Professor A. O. Rankine and Dr. H. A. Eccles respectively.

**A THIRD post-graduate course of instruction in** the diagnosis and treatment of venereal disease is being arranged by Mr. K. M. Walker at St. Bartholomew's Hospital Clinic, Golden-lane, E.C., established by the Corporation of London. The course will be held on Thursday afternoons at 5.30 P.M., commencing Thursday, May 13th. The beds attached to the clinic are available for the reception and study of suitable cases in addition to work in the out-patient department. There are still a certain number of vacancies. Any medical practitioner wishing to attend is invited to send his name to the secretary, National Council for Combating Venereal Diseases, 81, Avenue Chambers, Vernon-place, Southampton-row, W.C. 1.

THE LATE DR. E. S. H. GILL.—**Eustace Stanley** Hayes Gill, who died recently at Shaftesbury House Private Asylum, Formby, where he had lately taken over his father's duties as medical superintendent, was a well-known member of the medical profession in Liverpool and the surrounding districts. Educated at Liverpool University, he graduated M.B., Ch.B. in 1906, and was for a time resident medical officer at the Brownlow Hill Workhouse Hospital. A clever actor, he ungrudgingly gave his services wherever demanded in the name of charity, and it was while attending a dress rehearsal that he was taken ill, dying two days later. Dr. Gill leaves a widow and four children.

UNIVERSITY OF MANCHESTER APPEAL.—**The inten**sive and extensive crusade undertaken to raise £500,000 on behalf of the university, to which we referred in THE LANCET on April 17th, is being carried on with great vigour in and around Manchester. In the lay press there appear frequent pithy expositions of the work of various departments of the university on behalf of the community as well as in the advancement of learning. Amongst topics dealt with by way of enlightening the proletariat and enlisting contributions from the public are such matters as "the training of the engineer," "the school of commerce," "extra-mural teaching and what it means," "exclusion of women for lack of funds," "Manchester and its medical school as a great centre for clinical instruction," "education and the new democracy." This is the first appeal of its kind made on behalf of any British university, and whatever the financial result the university means to make it plain that it is the servant of the public without distinction of class. Dr. Alexander Irvine, a persuasive speaker, makes known the needs and possibilities of the university by short addresses between the acts at theatres, music halls, and kinema palaces, and in the dinner hour to the working man. It would seem that the audiences are not consumed with enthusiasm for the university, but they are nevertheless responsive to reasoned appeals for help. Another worker is touring the neighbouring towns in a car and addressing meetings of working-class audiences. If the result of the appeal does not come up to the standard expected it will not be through slackness in advertisement. To the hoardings of the city is affixed a striking poster setting forth excerpts from letters supporting the appeal, with effigies of the five writers selected—Mr. Clynes, Viscount Bryce, Lord Sumner, Lord Haldane, and Mr. Fisher. Outside the university is affixed a sort of barometric ladder as high as the Whitworth Hall, to show the rise of the fund. At present a figure somewhat over £160,000 has been reached.

PEOPLE'S LEAGUE OF HEALTH.—**The Lord Mayor** of London will preside at a meeting to be held at the Mansion House on May 11th, at 3 P.M., for the purpose of bringing before the lord mayors and mayors of the country the objects and scope of the league.

PRESENTATION TO A MEDICAL MAN.—**On behalf of** the inhabitants of Eastbourne the Duke of Devonshire recently presented Mr. Charles O'Brien Harding, M.R.C.S., L.R.C.P., mayor of Eastbourne from 1915 to 1919, with an oil painting of himself to be hung in the town-hall. On the retirement of Mr. Harding from the mayoralty in November last the honorary freedom of the borough was conferred upon him—

"In recognition of his distinguished services to the borough as a member of the town council during the past 23 years, as a justice of the peace for 16 years, and as mayor of the borough for five years, and in particular for the impartial, dignified, and efficient manner in which he performed the many additional, onerous, and exacting duties imposed upon him by reason of the Great War."

CENTRAL MIDWIVES BOARD.—**A special meeting** of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on April 21st, with Sir Francis H. Champneys in the chair. The names of several midwives were struck off the Roll, the following charges amongst others having been brought forward:—

Being in attendance at a confinement the midwife neglected to provide for or to give all necessary directions for securing the cleanliness and comfort of the mother and child, as required by Rule E.12; she neglected to wash the patient's external parts with soap and water, and to swab them with an efficient antiseptic solution, as required by Rule E.8, and she neglected to remove the soiled linen from the neighbourhood of the patient and from the lying-in room as soon as possible after the confinement, as required by Rule E.11. A presentation being abnormal, and the patient suffering from excessive bleeding the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E.21 (3), and medical aid having been sought for the patient she neglected to notify the local supervising authority thereof, as required by Rule E.22 (1) (*a*). A midwife was guilty of negligence and misconduct in the following respects: she neglected to examine the placenta and membranes, as required by Rule E.10; and she habitually employed an uncertified person to visit patients, contrary to Section 1 (4) of the Midwives Act, 1902. A child suffering from inflammation of and discharge from the eyes during her attendance, a midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5), and she did not on each occasion, when attending the patient, wear a clean dress of washable material, as required by Rule E.2. A midwife was not scrupulously clean in every way, as required by Rule E.2, and did not carry with her, when called to a confinement, the bag or basket, appliances, or antiseptics required by Rule E.3.

WELSH NATIONAL SCHOOL OF MEDICINE.—**The** inauguration of a scientific section of the medical students' club marks an important step in the progress of what it is expected will soon become an important teaching organisation. The ceremony was marked on April 23rd by an address given by Major-General Sir Robert Jones. The school is in process of being organised on the unit system of professors, and the Principal of the College announced that the full curriculum might be in action for the session 1921–22. The guests of the students' club were numerous, and, in addition, included the Lord Mayor, Sir William Seager, Sir John L. Thomas, and the Marchioness of Bute, who is at present an anatomy student in the school. Sir Robert Jones paid a tribute to the students for the step they were that day taking, and said that the future before the Welsh National School of Medicine ought to be a great one. A medical school must have a sufficiency of clinical material, and the speaker held that the supply could only be provided by the establishment of hospital accommodation outside big cities. He held that the King Edward VII. Hospital, splendidly equipped as it was, could not on its present site meet the need, and advocated that while this institution should be a centre for clinics and for emergency and major beds, more accommodation should be placed in the fresh air and sunshine on such a site as he understood was likely to become available on the Rookwood Estate at Llandaff. The war had shown that expensive buildings were not necessary; indeed, they were rather disadvantageous than otherwise. Every type of case benefited by exposure to fresh air, and he dwelt upon its advantages in his own particular specialty, that of orthopædics. He considered 1500 beds necessary as compared with 400 provided by the present hospital. He pointed out that the scheme he advocated was already partially in existence, since mental cases, fever cases, and cases of phthisis were already treated outside the city, and only required to be linked up with the central hospital. This connexion had recently been established for mental cases by means of out-patient clinics. He closed his remarks with a tribute to the Prince of Wales Hospital, initiated during the war for the after-care of limbless warriors, and now to be devoted to the needs of the civilian population.

GENERAL NURSING COUNCIL.—**The nominees of** the Board of Education on the Council are Hon. Mrs. Eustace Hills and Miss M. J. Tuke, Bedford College.

FROM **to-day notifications received by the London** medical officers of health of acute primary pneumonia, acute influenzal pneumonia, malaria, dysentery, trench fever, acute encephalitis lethargica, and ophthalmia neonatorum (whether notified by a medical practitioner or by a certified midwife) must within 12 hours of receipt be forwarded by the medical officer to the Metropolitan Asylums Board. The obligation already applies to acute polio-encephalitis and the usual notifiable infections.

THE NATIONAL HEALTH SOCIETY.—**Sir George** Newman, Chief Medical Officer of the Ministry of Health, delivered on April 22nd, before the National Health Society, the annual Priestley Memorial Lecture, taking as his subject "The Place of Public Opinion in Preventive Medicine." The lecture was preceded by the presentation of diplomas to the society's students by Princess Christian. Sir James Crichton-Browne, chairman of the society, presided in the absence of the Minister of Health. Among those present were: Sir Rickman and Lady Godlee; Sir William Church; Surgeon Rear-Admiral Sir Robert Hill, Medical Director-General of the Admiralty; Sir John Goodwin, Director-General A.M.S.; Sir E. Ray Lankester; Sir David Ferrier; Sir Malcolm and Lady Morris; Mrs. H. A. L. Fisher; Dr. Maurice Craig; Professor Kenwood; Dr. Higgins, medical officer of health, St. Pancras; Mrs. Kendal; Sir John MacAlister; Sir Frederick Mott; and Dr. Charles Porter, medical officer of health, St. Marylebone. A large gathering of members, friends, and subscribers of the society, and past and present students, filled the Robert Barnes Hall at the house of the Royal Society of Medicine.

ST. FRANCIS HOME.—**An appeal is being made for** the sum of £8000 for the purchase of a suitable house and its conversion into a nursing home, fully equipped, for the treatment of patients with small fixed incomes. When the home is once started it should be self-supporting, even when fees are kept down to a very low level, since the actual nursing is to be provided by a Church of England sisterhood who are prepared to give their services. The home will be run on ordinary nursing home lines, with private rooms, and patients will be able to choose their own physicians and surgeons if so desired. The medical signatories to the appeal include Mrs. M. Scharlieb, Sir Francis Champneys, Sir Malcolm Morris, and Mr. E. B. Turner. Contributions should be sent to Major Campbell, the honorary treasurer, St. Francis Home Fund, at 3, Southwell-gardens, S.W. 7, and any inquiries to the honorary secretary, Miss H. Vansittart, 34, Queen's Gate-terrace, S.W. 7.

CONJOINT BOARD OF SCIENTIFIC SOCIETIES.—**The** third annual report for the year 1919 gives evidence that the Board continues to discharge useful work. During the year there was a danger that supplies of casein and glue would fall short, and that aeroplane manufacture would suffer thereby. The Board came to an arrangement with the Air Group of the Ministry of Munitions, and carried out a research into the nature, functions, and manufacture of adhesives which resulted in the discovery of useful new adhesives. In addition to this, Dr. Schryver and his colleagues devised improvements in the manufacture of casein which effect a considerable saving in material and an improvement in its quality. The Committee on the Water Power of the Empire, with Sir Dugald Clerk as its chairman and Professor A. H. Gibson as secretary, drew up a second report, in which they are able to claim that they have stimulated interest in water power investigations in many parts of the Empire. A proposal has been put forward to hold an Imperial Water Power Conference in London, as the lack of facilities in universities and technical institutes for the specialised training of young men in hydro-electric engineering is noticeable. An elaborate report on the advisability or otherwise of the compulsory adoption of the metric system, drawn up by a committee with Mr. Wilson-Fox as chairman and Mr. A. R. Hinks as secretary, was discussed at a special meeting of the Board called for the purpose. The report emphasises the practical difficulties which would confront compulsory adoption, especially during the war. Other pieces of work summarised in the report relate to such subjects as the supply of timber for aeroplanes, the establishment of geophysical and petrophysical institutes, and the place of science in warfare. The Board has also taken its share in the discussion of the formation of national and international research councils and in advocating the publication of a work devoted to the mineral resources of the Empire. The *Bulletin*, which is printed and issued to the conjoint societies and the members of the Board, gives in a comprehensive form a forecast of the meetings of the societies and an early announcement of the papers to be read thereat.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

WEDNESDAY, APRIL 21ST.

*Promotion of Surgeon Captains.*

Sir WATSON CHEYNE asked the First Lord of the Admiralty whether he was aware that in the April Navy List only four officers were shown under the heading of surgeon rear-admiral, and that no surgeon captains had been promoted to fill the two vacancies created by the retirement in February last of Surgeon Rear-Admiral Dimsey, D.S.O., and the addition of one surgeon rear-admiral to the list as announced in March; and whether he was aware of any reason why surgeon captains should not be promoted at once on the occurrence of vacancies in the same way as captains in the executive branch are promoted to fill vacancies in the Rear-Admirals' List.—Sir J. CRAIG (Parliamentary Secretary to the Admiralty) replied: The question of promoting officers to fill the vacancies on the Surgeon Rear-Admirals' List is now under the consideration of the Board of Admiralty, and it is hoped to announce the promotions at an early date. With regard to the second part of the question; the reason is that promotion to the rank of surgeon rear-admiral is by selection, whereas promotion to rear-admiral is normally made by seniority.

*Medical and Veterinary Students' Grants.*

Sir MARTIN CONWAY asked the Minister of Labour whether ex-army students at the University of Liverpool, proceeding through a five years' course to a degree in veterinary surgery, might be granted an equal subsidy to that given to medical students, seeing that for the first two years the standard required for both classes was identical, and training practically identical, and that the expense to the student for both was the same.—Dr. MACNAMARA replied: As stated in the reply to my honourable friend's question of March 24th, the maximum annual awards permissible under the Training Grant Scheme for students proceeding to veterinary degrees at the University of Liverpool are the same as for medical students at the institution. The scheme provides machinery whereby a student who feels that the amount of his award is inadequate can appeal for an increase within the maximum permissible. Actually, owing to the continued high cost of living, the average awards now being made are on a somewhat higher scale than they were three or four months ago. In view of the fact that cases are dealt with individually, and that adequate machinery exists for remedying defects in assessment of grants, a general equalisation does not seem to be called for. I might add, however, that instructions have been given to the District Director to make fuller inquiry into the question, which will be further considered on receipt of his report. If my honourable friend has in mind any individual case of hardship I shall be glad if he will furnish me with particulars of it.

*Medical Supervision of Elementary Schools.*

Mr. GRATTAN DOYLE asked the Minister of Health if his attention had been called to the necessity of closer medical supervision of elementary schools; and if he could arrange for a weekly attendance of a doctor at each school, when he could pass the children in review, thereby anticipating illness and improving the health of the children and also saving parents loss of time, worry, and expense.—Dr. ADDISON replied: My honourable friend may be assured that the necessity for doing all that is practicable in this matter is fully recognised; but it is not, I think, necessary or practicable to ask authorities to arrange for the weekly attendance of school doctors at each school, as suggested by my honourable friend. I may remind him also that in 310 out of the 318 local education authorities in England and Wales there are school nurses performing some of the functions to which he refers.

Mr. BILLING: Will the right honourable gentleman consider the advisability of introducing tooth-cleaning drill in the mornings for small children, having regard to the extraordinarily beneficial effect clean teeth have on small children?—Dr. ADDISON: I think it is already in operation.

Mr. IRVING: Is the right honourable gentleman aware that in New York, and certainly in some countries, a daily review of children takes place; and is it not a fact that there is a daily variation in the health of children?—Dr. ADDISON: That is quite so; it depends on the reviews you have. There are not enough doctors and nurses in the country to review every child.

Mr. IRVING: In the cases I have mentioned there are men qualified.—Dr. ADDISON: The honourable gentleman may be assured that the school teachers review these children every day, and the children are very well trained and instructed in this matter. I do not think it requires special action.

*Dental Legislation.*

Mr. RAFFAN asked the Minister of Health if he could now state whether it was the intention of the Government to introduce legislation during the present session of Parliament for the purpose of carrying out the recommendations of the departmental committee on the Dentists Act, 1878.—Dr. ADDISON replied: I am not yet in a position to make a statement on this matter, but I hope to do so very shortly, possibly before Whitsuntide.

*Meat Inspection and Public Health.*

Mr. JAMES BELL asked the Minister of Health if he was aware of the lack of a uniform system for the inspection of meat, and that the want of such a system constituted a menace to the public health; and whether he would arrange for the establishment of a uniform system which would include the ante-mortem and post-mortem examination of all animals intended for human consumption.—Dr. ADDISON replied: I am aware of the desirability of securing uniformity in meat inspection in the interests of public health, and I am considering what steps can best be taken, and what further powers may be necessary to that end.

*Alleged Deaths from Starvation.*

Commander Viscount CURZON asked the Minister of Health whether his attention had been called to the case of a man, his wife, and one child who were reported to have died of starvation in Bermondsey Hospital; whether he could state how such a thing was possible, and what action he had taken.—Dr. ADDISON replied: Yes, sir. Immediately my attention was called to the case I instructed one of my inspectors to report upon it. The medical superintendent of the infirmary reports that the man, his wife, and a child of 4 years old were admitted to the infirmary on April 10th, all three suffering from pneumonia. The man died from pneumonia on the 13th. The wife was delivered of a still-born child on April 12th, and died of pneumonia on the 13th. The child of 4 is still in hospital. I propose to make further inquiries into this case.

Mr. W. THORNE: Will the right honourable gentleman on making inquiries strictly investigate the houses in which the people are living?—Dr. ADDISON: I shall certainly do that.

Mr. BILLING: Will the right honourable gentleman consider the advisability, in calling for a report on the cases that still exist in London, of seeing whether some comprehensive scheme could be introduced into the Poor-law administration with a view to preventing death rather than burying people after death?—Dr. ADDISON: All I can say is that for several months we have been considering a comprehensive scheme relating to Poor-law reform and other matters arising out of it.

*Circular 204 and Home Treatment.*

Mr. IRVING asked the Pensions Minister if he was aware that prior to the issue of Circular 204 (revised), issued from the Ministry of Pensions, Feb. 6th last, a disabled soldier, when placed on home treatment by the medical referee, and certified by such referee to be unable to work on account of his disability, caused or aggravated through war service, automatically became entitled to allowances equal to 100 per cent. disability for the period of his incapacity for work; that according to this Circular 204 (revised) of Feb. 6th, all cases of home treatment had now to be submitted to the Deputy Commissioner of Medical Services of the area for his approval or otherwise; if he would state the reasons for this change, so much to the disabled soldier's disadvantage, and if he could see his way to revert to the practice of the last three years, whereby a man certified as being incapable of doing any work on account of such a disability, and recommended for home treatment should be automatically entitled to benefit without reference to an area deputy commissioner of medical service.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: Circular 204 does not involve any modification of the rights of disabled men under the pensions warrant. The primary function of the Deputy Commissioner of Medical Services under that circular is to secure for the men the form of treatment most suitable to their disabilities. Many men have in the past been recommended for home treatment who would have been better treated in one or other of the special institutions of the Ministry, as to which medical referees are of necessity not so well informed as the medical officers of the Department. It is also the function of the Deputy Commissioner to assist in the protection of public funds by ensuring that treatment allowances are confined to those cases for which they were intended by Article 6 of the Royal Warrant. My right honourable friend is unable to entertain the suggestion contained in the last paragraph of the question.

THURSDAY, APRIL 22ND.

*Retired Military and Naval Medical Men at Pensions Ministry.*

Mr. ROBERT YOUNG asked the Pensions Minister whether a considerable number of retired Regular naval and military medical men employed by the Ministry were in receipt of pensions from £600 to £1000 a year; whether demobilised temporary doctors whose sole source of income such an appointment frequently was were still in need of employment, and who, through the appointment of these pensioned officers, were frequently precluded from some of the better appointments; and whether pre-war rank was often considered as a sine qua non of medical efficiency.—Major TRYON replied: Of the 12 retired Regular naval and military medical men employed as full-time medical officers in the Ministry, six are in receipt of pensions of £600 a year or more. This represents a little more than 1 per cent. of the total number of medical men employed, and it is not therefore the fact that the employment of these gentlemen has any appreciable effect on the prospects of demobilised temporary medical men. The medical officers of the Ministry are selected according to their qualifications for the particular work to be performed.

*Pensions of Blinded Soldiers.*

Mr. FOREMAN asked the Pensions Minister if he would inform the House how many soldiers totally blinded in the war were now in receipt of pensions; whether there were any such blinded soldiers who were not receiving pensions; if so, how many; if he would state the reasons for such non-receipt of pensions; whether any responsibility was accepted by his Ministry for keeping in touch with such blinded men, even if they did not receive pensions, to see that they did not fall on evil days; what was the maximum weekly pension for disablement by blindness; and if any investigations were made to ascertain if it was adequate.—Major TRYON replied: Approximately 1300 soldiers discharged for total blindness have been pensioned under the Royal Warrant, and 110 have been refused pensions. The latter are men whose blindness arose from causes not connected with their military service, or was due to their own serious negligence or misconduct. All men discharged for blindness are sent to "St. Dunstan's" (or in Scotland to Newington House, Edinburgh), where they are trained in a new occupation, suitable to their condition before returning to their homes. After their return the institutions mentioned continue to keep in touch with them by means of local representatives. The disablement pension for total blindness varies from 40s. to 60s. according to rank, together with a constant attendant allowance of 10s. to 20s. a week, a wife's allowance of 10s. a week, and additional allowances for children.

Mr. BILLING: Can the honourable and gallant gentleman say what is being done with the 110 odd blinded men who have not been pensioned; whether anything was being done for them, or whether they were being thrown on the rates?—Major TRYON: If they are at "St. Dunstan's" they are provided for.

Mr. BILLING: What can they do after they leave St. Dunstan's?

Colonel C. LOWTHER: Is it a fact that no provision is made for blind men who have lost their sight in the service of their country?—Major TRYON: If they lose their sight in the service of their country they are provided for.

*Prime Minister and Blind Deputation.*

Mr. WATERSON asked the Prime Minister if it was his intention to personally interview the deputation of the blind on the 26th or 27th of this month.—Mr. BONAR LAW replied: The Prime Minister has informed the deputation that if he is in London when they arrive he will be pleased to receive them, and in the event of his being still away he suggested that I should receive them on his behalf.

*Vaccination Officers.*

Mr. WATERSON asked the Minister of Health the approximate cost of the vaccination officers in 1913 and 1919 respectively.—Dr. ADDISON replied: The approximate cost of public vaccination in England and Wales was £168,000 in the financial year 1912-13 and £112,000 in the financial year 1918-19. I have no separate information as to the cost of the vaccination officers.

Mr. WATERSON asked the Minister of Health if it was his intention to repeal the Vaccination Acts?—Dr. ADDISON: No, Sir.

MONDAY, APRIL 26TH.

*Epileptic Officer's Claim for Pension.*

Mr. JAMESON asked the Secretary for India if he was aware that a lieutenant in the 74th Punjabis, whose name had been privately communicated, passed through Sandhurst as medically fit in 1912, developed epilepsy, of which he had no previous symptoms, when on service in China after an attack of fever in 1915, was invalided out for epilepsy in 1916, and refused a pension on the ground that the epilepsy was not the result of military service; and if he would take steps to have a pension granted.—Mr. MONTAGU replied: Under the Indian Army Regulations an officer is not eligible for pension who is invalided out after less than three years' service in India in the Indian Army unless the disability is certified by the proper medical authority as having been

caused by duty. The case referred to was very carefully considered, but the medical authorities could not regard the epilepsy as having been caused by military service, and the officer was therefore not awarded a pension. He was, however, granted a gratuity of one year's British pay.

*Welfare of the Blind.*

Dr. ADDISON presented a Bill to promote the welfare of blind persons. No explanation of the Bill was given, but it is understood that the chief proposal of the measure is that blind persons who are unable to work should be entitled to receive a State pension of 10s. per week between the ages of 50 and 70 years on the same conditions as those attaching to the receipt of old age pensions. The Bill will also, it is stated, provide for the registration of all voluntary institutions making public appeals for funds. Further training facilities for the blind are to be provided through certain local authorities.

TUESDAY, APRIL 27TH.

*National Health Insurance Bill.*

The National Health Insurance Bill was considered by Standing Committee A of the House of Commons.

Mr. G. LOCKER-LAMPSON moved an amendment designed to secure that local authorities providing treatment for persons suffering from tuberculosis should co-opt persons with experience of the working of tuberculosis treatment.

Dr. ADDISON explained that the purpose of taking sanatorium benefit out of the National Health Insurance Bill was that health services were contemplated which would more conveniently deal with tuberculosis. The amendment was withdrawn.

Major FARQUHARSON moved to insert after Clause 8 a new clause as follows:—

1. Any medical practitioner aggrieved by a decision of the Minister, or of any special body through which the powers and duties of the Minister, under Section 15, Subsection (2) (*b*), of the Act of 1911, are exercised, to remove his name from any list of medical practitioners may appeal against the decision to the High Court within the time, and in the manner, and on the conditions directed by the rules of court. 2. The costs of any such appeal shall be in the discretion of the court, and no appeal shall be allowed from any order or decision of the court in any such appeal.

Dr. ADDISON replied that no medical man was compelled to go on the panel, and he could come off it when he liked. When there was this freedom of contract he did not see that there was any case for appealing to the High Court. A medical man before he was removed from the panel would have an opportunity to lay his case before his professional brethren.

The new clause was withdrawn and the Committee stage of the Bill was concluded.

*Homes for Mental Cases.*

Major ENTWISTLE asked the Pensions Minister if he would say how many homes of recovery were under his control, how many mental cases had passed through, and how many were receiving treatment.—Mr. MACPHERSON replied: There are 20 such institutions under the control of the Ministry, and 2383 men are at present under treatment. I am making inquiry with regard to the second part of the question, and will inform my honourable and gallant friend of the result.

*Mental Cases at Warrington and Whitchurch.*

Major ENTWISTLE asked the Secretary for War and Air if he would state how many mental cases passed through Warrington and Whitchurch hospitals; how many mental cases had been reported to his department since August 4th, 1914; how many had recovered; how many died; and the disposition of the remainder.—Mr. CHURCHILL replied: The number of mental cases which passed through the two hospitals mentioned were: Warrington, 8410 up to March 31st, 1920, the date of the latest report; Whitchurch, 1862 up to Jan. 2nd, 1920, the date on which the hospital was closed. The figures asked for in the remainder of the question will not be available until the Medical History of the War is published, which will not be for some two or three years. The following details, however, are available with regard to the patients treated in the two hospitals referred to in the question:—Warrington (from the date of opening to Dec. 31st, 1919): Number of cases treated, 8127; discharged to their homes recovered, 3657; discharged to asylums, 1026; transferred to other military mental hospitals or repatriated overseas, 2433; died, 108; remaining in hospital, 803. Whitchurch (from date of opening to Oct. 31st, 1919): Number of cases treated, 1862; discharged to their homes recovered, 1102; discharged to asylums, 446; died, 33; remaining in hospital, 281.

*Death-rate of Old-age Pensioners.*

Mr. W. THORNE asked the Minister of Health (1) the number of old-age pensioners for the years ending March, 1918, 1919, and 1920; and (2) the death-rate of old-age pensioners for the same years.—Mr. BALDWIN (Secretary to the Treasury) replied: The number of old-age pensions payable on the last Friday in the year ended March 31st, 1918, was 943,077, and in the year ended March 31st, 1919, 920,198. The number for the year ended March 31st, 1920, is not yet available, but the number payable on the last Friday in December, 1919, was 926,631. The corresponding figures of the pensioners of whose death information has reached the pension officer are as follows: In the year ended March 31st, 1918, 94,478; in the year ended March 31st, 1919, 105,746; in the nine months ended Dec. 31st, 1919, 68,550.

*Financial Provision for Sanatorium Benefit.*

Major D. DAVIES asked the Minister of Health what arrangements were being made to provide the money for sanatorium benefit, which, under the National Health Insurance Bill, 1920, it was proposed to take out of the hands of the Insurance Committees.—Dr. ADDISON replied: The financial arrangements which will be necessary on the termination of sanatorium benefit are under consideration, and I hope to be in a position to make an announcement on this subject at an early date.

# Appointments.

COFFIN, S. W., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to the Hospital for Diseases of the Throat, Golden-square.

JEFFERISS, I. M., L.R.C.P. Lond., M.R.C.S., Medical Officer of Health for Okehampton (Devon).

PARKINSON, JOHN, M.D. Lond., M.R.C.P. Lond., Assistant Physician to the National Hospital for Diseases of the Heart.

TAYLOR, J., M.R.C.S., L.S.A., Honorary Consulting Radiologist to the Bristol Royal Infirmary.

Certifying Surgeons under the Factory and Workshop Acts: STEWART, F. M., L.R.C.P., & S. Edin. (Hull); MCCALLUM, J. D., M.B., Ch.B. Glasg. (Lochgilphead).

# Vacancies.

***For further information refer to the advertisement columns.***

*All Saints' Hospital (for Genito-Urinary Diseases), 49-57, Vauxhall Bridge-road, Victoria, S.W.*—H.S. £150.

*Barnsley, Beckett Hospital.*—Jun. H.S. £200.

*Bath, Royal Mineral Water Hospital.*—Res, M.O. £250.

*Battersea Borough Council.*—Asst. M.O.H. £700.

*Bermondsey Borough.*—Female Asst. M.O.H. £600.

*Birkenhead Borough Hospital.*—Jun. H.S. £170.

*Birmingham Union, Dudley-road Hospital.*—Res. Asst. M.O. £365.

*Bootle Borough.*—M.O.H., &c. £800.

*Bournemouth, Royal Victoria and West Hants Hospital.*—Hon. Asst. S. to Oph. Dept. Three Hon. Anæs.

*Bradford Children's Hospital.*—H.S. £180.

*Bridgend, Glamorgan County Asylum.*—Jun. Asst. M.O. £350.

*Brighton, Royal Sussex County Hospital.*—H.P. £150.

*Bury St. Edmund's, West Suffolk General Hospital.*—Res. H.S. £175.

*Cairo, Egyptian Government, Ministry of Education.*—Professor of Pathology. L.E. 1200-1400.

*Camberwell Infirmary, Brunswick-square, Camberwell.*—Locum Tenens Asst. M.O. £7 7*s.* weekly.

*Cambridge, Addenbrooke's Hospital.*—H.S. £130.

*Cancer Hospital, Fulham-road, S.W.*—Three Anæsthetists.

*Canterbury, Kent and Canterbury Hospital.*—Two Res. M.O.'s. £200 and £150 respectively.

*Chester County Asylum.*—Third Asst. M.O. £350.

*City of London Hospital for Diseases of the Chest, Victoria Park, E.*—M.O. £225. Also Asst. M.O. £125 Also Dent. S.

*Croydon County Borough.*—Asst. M.O.H. and Asst. Sch. M.O. £500.

*Cupar-Fife, Fife and Kinross Joint Sanatorium Board, Glenlomond Sanatorium.*—Asst. Res. M.O. £300.

*Derby, Derbyshire Hospital for Women, Bridge-street.*—Hon. Asst. S.

*Derby, Derbyshire Royal Infirmary.*—Oph. H.S. £200.

*Didworthy, South Brent, Devon and Cornwall Sanatorium for Consumptives.*—Asst. M.O. £250.

*Dr. Barnardo's Homes, 18-26, Stepney Causeway, E.*—Sen. M.O.

*Doncaster Royal Infirmary and Dispensary.*—Asst. H.S. £225.

*Downs Sanatorium, Sutton, Surrey.*—Sen. Asst. M.O. £645 5*s.*

*Durham University.*—Asst. in the Dept. of Bacteriology. £600.

*Elizabeth Garrett Anderson Hospital, Euston-road, N.W.*—Female Jun. Asst. P., Clin. Assts., Two H.S.'s, H.P., and Obstet. Asst. £50 each.

*Evelina Hospital for Sick Children, Southwark, S.E.*—Medical Radiographer. £120.

*Exeter City.*—Asst. Tuberc. O. and Asst. M.O.H. £500.

*Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.*—Res. M.O. £250.

*Galway, University College.*—Professorships of Anat. and Phys.

*Guildford, Royal Surrey County Hospital.*—Third H.S. £150.

*Hospital for Sick Children, Great Ormond-street, London, W.C.*—Surg. Registrar. £200.

*Ipswich.*—Asst. County M.O.H. £500.

*Ipswich, East Suffolk County Education Committee.*—Dent. S. £450.

*Kensington Board of Guardians Institutions, Marloes-road.*—Third Asst. Res. M.O. £325.

*Leeds City.*—Asst. M.O. for Maternity and Child Welfare. £500.

*Leeds City, Tuberculosis Sanatorium, Killingbeck.*—Med. Supt. £500.

*Leeds Public Dispensary.*—Res. M.O. £200.

*Liverpool, Royal Southern Hospital.*—Cas. O. £150.

*London Homœopathic Hospital, Great Ormond-street and Queen's-square, Bloomsbury, W.C.*—S. for Dis. of Eye.

*London Temperance Hospital, Hampstead-road, N.W.*—Cas. O. £120.

*Macclesfield, Cheshire County Asylum, Parkside.*—Asst. M.O. £350.

*Manchester Children's Hospital, Gartside-street, Manchester.*—Asst. M.O. £200.
*Manchester County Asylum, Prestwich.*—Asst. M.O. £450.
*Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.*—Res. M.O. £350.
*Middlesbrough, North Ormesby Hospital.*—Asst. H.S. £200.
*Montrose Royal Asylum.*—Asst. M.O. £300.
*Newcastle-upon-Tyne, City Hospital for Infectious Diseases.*—Res. Med. Asst. £350.
*Newcastle-upon-Tyne Education Committee.*—Asst. Sch. M.O. £500. Two Dental S.'s. £400.
*Newcastle-upon-Tyne, Hospital for Sick Children.*—Jun. Res. M.O. £200.
*Newport (Mon.) Education Committee.*—Asst. Sch. M.O. and Med. Insp. of Schools. £500.
*Norfolk County.*—Tuberc. O. £600.
*Norwich City.*—Asst. M.O.H. and Res. M.O. at Isolation Hospital. £450.
*Norwich, Norfolk and Norwich Hospital.*—Cas. O. £200.
*Nottingham Education Committee.*—Sch. Dent. £500.
*Nottingham General Hospital.*—Cas. H.S. £150.
*Nottingham, Notts County Council.*—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.
*Peterborough City and Borough.*—M.O.H. £650.
*Portsmouth Royal Hospital.*—H.S. £150.
*Preston Royal Infirmary.*—Jun. H.S. £180.
*Rhondda Urban District Council.*—Dental S. £400.
*Royal Free Hospital, Gray's Inn-road, W.C.*—Sen. Res. M.O. £200. Also Cas. O. £100. Also Two H.S.'s. £50.
*St. Thomas's Hospital, S.E.*—P.
*Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh-gardens, N.W.*—H.P. £100.
*Sheffield, East End Branch of the Children's Hospital.*—H.S. £150.
*Sheffield Royal Hospital.*—Asst. Cas. O. £150.
*Sleaford, Kesteven County Asylum, near Sleaford, Lincolnshire.*—Asst. M.O. £350.
*Southampton, Royal South Hants and Southampton Hospital.*—Pathologist.
*Southend-on-Sea, Victoria Hospital.*—H.S. £200.
*Stamford, Rutland, and General Infirmary, Stamford.*—H.S. £200.
*Sunderland Royal Infirmary*—H.P. £200.
*Swansea General and Eye Hospital.*—Jun. H.S. £200.
*Torquay, Torbay Hospital.*—H.S. £200.
*Union of South Africa.*—Asst. Health O. £900. Also Two Med. Inspectors, £850 each. Also Asst. Path. £750. Also Government Med. and Port Health O. £750.
*University of London, King's College, Department of Physiology.*—Demonstrator in Physiology. £300.
*Wells Asylum, Somerset.*—Sen. Asst. M.O., £450.
*West Bromwich and District Hospital.*—Res. H.S. £200.
*West Ham Union.*—Two Specialist Consultants. £150.
*Westminster Hospital, Broad Sanctuary, S.W.*—H.S.
*Whitehaven and West Cumberland Infirmary.*—Res. H.S. £180.
*Willesden Institution, Acton-lane, Willesden.*—Res. Asst. M.O. £350.
*Wimbledon, Borough of.*—Asst. M.O.H. £500.
*Worcester County Borough.*—Asst. M.O.H. £500.
*Worcester County and City Mental Hospital, Powick.*—Jun. Asst. M.O. £300.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Tarbert and at Yatton.

# Births, Marriages, and Deaths.

## BIRTHS.

ALEXANDER.—On April 25th, at Cade House, Riverhead, Sevenoaks, the wife of J. Finlay Alexander, M.A., M.D. Camb., of a son.
ARONSON.—On April 21st, at the Mill House, Chipperfield, King's Langley, Mollie, wife of Hugh Aronson, of a daughter.
CHAMBERS.—On April 19th, at a nursing home in London, the wife of Captain G. O. Chambers, M.C., R.A.M.C., of a son.
KILNER.—On April 21st, at Albert-crescent, Bury St. Edmund's, the wife of H. Goff Kilner (late Major, R.A.M.C., Croix de Guerre), of a daughter.
PURSER DAVIES.—On the 22nd April, at a nursing home, Cardiff, to Evelyn (*née* Wall-Row), wife of Purser Davies, M.C., M.B., Ch.B., of Newport, Mon.—a daughter.
WAY.—On April 21st, at "Croyland," Finchley-road, N.W., to Phillis, wife of C. Berkeley Way, M.C., M.B., B.S. Lond., &c., late 50th Field Ambulance—a daughter.

## MARRIAGES.

FENWICK—GRAY.—On April 20th, at Airlie, Bridge of Weir, Captain S. Fenwick, M.C., R.A.M.C., to Marguerite Amelia, elder daughter of John Gray, Bridge of Weir.
VANDERMIN—HART.—On April 17th, at St. Mary Magdalene's Church, Enfield, Henry F. Vandermin, M.D., B.S. Lond., to Gwendolen Mary, elder daughter of Mr. and Mrs. A. H. Hart, of Hillcrest, Enfield.

## DEATHS.

GILL.—On April 16th, suddenly, at Shaftesbury House, Formby, near Liverpool, in his 42nd year, Eustace Stanley Hayes Gill, M.B., Ch.B. Liverpool, the dearly loved husband of Edith Mary Gill, and the well-beloved and only son of Dr. and Mrs. Stanley Gill.
PARSONS.—On April 27th, at a nursing home in London, P. H. Parsons, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., aged 47.
SHERRARD.—On April 24th, at Lusted Hall, Tatsfield, Caesar Dudley Sherrard, M.R.C.S., aged 67.
THORNE.—On April 24th, at Wood View, Dore, C. A. Thorne, M.B.E., L.R.C.P., L.R.C.S., J.P., in his 63rd year.
WOOD.—On April 24th, while studying at Genoa, Cecil Denyer Wood, M.B., M.R.C.P., of Sleaford, in his 32nd year.

***N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.***

# Medical Diary.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.**

*MEETINGS OF SECTIONS.*

**Tuesday, May 4th.**

SURGERY: SUBSECTION OF ORTHOPÆDICS (Hon. Secretaries—A. S. Blundell Bankart, R. C. Elmslie): at 5.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920-1921.
*Cases* (at 5 P.M.).
Mr. Laming Evans: Dislocation of the Hips, Knees, Ankles, and Radii.
Mr. C. J. Marshall: Deformity of the Lower Limbs.
Mr. R. C. Elmslie: Paralytic Dislocation of the Hips.

**Wednesday, May 5th.**

SURGERY (Hon. Secretaries—Cyril A. R. Nitch, Herbert J. Paterson): at 5.30 P.M.
*Exhibition of Specimens* (at 4.30 P.M.).
Annual General Meeting—Election of Officers and Council for 1920-1921.
Exhibition and Demonstration of Specimens of Innocent Tumours of Alimentary Tract and Leather-bottle Stomach.

**Thursday, May 6th.**

A CONJOINT MEETING of the SECTION OF OBSTETRICS AND GYNÆCOLOGY WITH THE NORTH OF ENGLAND AND MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETIES will be held.
At 10.30 A.M.: Discussion on "The Treatment of Antepartum Hæmorrhage," to be opened by Dr. Hastings Tweedy.
At 2 P.M.: Annual General Meeting—Election of Officers and Council for 1920-1921; followed by—
Discussion on "Rupture of the Cæsarean Section Scar in subsequent Pregnancy and Labour," to be opened jointly by Dr. Munro Kerr and Dr. Eardley Holland. Reports will be presented from various hospitals.
At 7.30 P.M.: Dinner at the Great Central Hotel. Price of tickets, 10*s.* 6*d.* Mr. J. D. Malcolm, President of the Section, in the chair.
It is earnestly hoped that Members of the Section will make a special effort to attend these meetings and the dinner.
Will Members who wish to take part in the discussion or to be present at the dinner, kindly send their names as soon as possible to one of the Hon. Secretaries (J. S. Fairbairn, 42, Wimpole-street, W. 1, Herbert Williamson, 8, Queen Anne-street, W. 1).

**Friday, May 7th.**

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope): at 4.45 P.M.
Annual General Meeting—Election of Officers and Council for 1920-1921.
*Cases* (at 4 P.M.) will be shown by—
Mr. Dawson, Mr. Layton, Dr. Dan McKenzie, Dr. Irwin Moore, Mr. Norman Patterson, Mr. Ryland, and others.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
WEDNESDAY, May 5th.—4.30 P.M., Paper:—Dr. C. E. K. Mees: A Photographic Research Laboratory.

ASSURANCE MEDICAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
WEDNESDAY, May 5th.—4.30 P.M., Council Meeting. 5.30 P.M., Paper:—Sir Thomas Oliver: Gastro-intestinal Operations and their Sequelæ, especially Cancer, from a Life Insurance Point of View.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, May 3rd.—2 P.M., Dr. G. Stewart: Medical Out-patients. 5 P.M., Dr. Morton: X Ray Therapeutics.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 5 P.M., Dr. Pernet: Lupus Vulgaris and Syphilis.
WEDNESDAY.—11.30 A.M., Mr. MacDonald: Demonstration of Cystoscopy. 5 P.M., Dr. Beddard: Practical Medicine.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 5 P.M., Mr. B. Harman: Pathology of Cataract.
FRIDAY.—2.30 P.M., Mr. Addison: Demonstration of Surgical Cases. 5 P.M., Sir R. Armstrong Jones: Mental Disease.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon: Mr. Sinclair: Surgical Anatomy of the Abdomen.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, May 7th.—9.15 P.M., Mr. A. Edmunds: Syphilis in Surgical Practice (2).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
MONDAY, May 3rd.—2 P.M., Dr. Melville: X Ray Department.
TUESDAY.—2 P.M., Dr. D. Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Maitland: Doubtful Cases.
WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Beaumont: Doubtful Cases.
THURSDAY.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration:—Dr. Young: Doubtful Cases.

FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Jex-Blake: Doubtful Cases.
SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Nutrition will be given at King's College for Women (Household and Social Science Department), Campden Hill-road, Kensington, W.
MONDAY, May 3rd, AND TUESDAY.—5 P.M., Lectures I. and II.:—Dr. E. Mellanby.

CHADWICK PUBLIC LECTURES, Pathological Lecture Hall, The New Medical Schools, Cambridge.
TUESDAY, May 4th.—5 P.M., Dr. F. G. Crookshank: Man and Disease—I., Our Conceptions of Disease and Diseases.
FRIDAY.—5 P.M., Dr. F. G. Crookshank: Man and Disease—II., The Relation of Medicine to the Biological Sciences.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.
WEDNESDAY, May 5th.—4 P.M., Prof. A. Hall: Gall-stones.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, May 4th.—4.30 P.M., Lecture:—Mr. J. P. Buckley: Some Practical Points on Lower Limb Stumps and Artificial Limbs.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, May 6th.—4.30 P.M., Mr. Smalley: Technique of Routine Examination of the Ear, Nose, and Throat in General Practice. (At the Salford Royal Hospital.)

## Communications, Letters, &c., to the Editor have been received from—

**A.**—Air Ministry, Lond.; Mr. J. E. Arnold, Lond.; Assurance Medical Society, Lond., Hon. Secs. of.
**B.**—Mr. J. O. Butcher, Lond.; Mr. J. Burns, Edinburgh; Mr. W. H. Battle, Lond.; Dr. J. L. Birley, Lond.; Col. R. J. Blackham, Chatham; Dr. H. Brown, Lond.; Dr. W. H. Broad, Liverpool; Dr. C. Borg, Floriana, Malta; Dr. G. Black, Dublin; Dr. J. Blomfield, Lond.
**C.**—Dr. H. P. Cholmeley, Forest Row; Prof. E. L. Collis, Cardiff; Major A. G. Coullie, I.M.S., Duns; Dr. A. Castellani, Lond; Sir F. Colyer, Lond.; Child Study Society, Lond.; Dr. W. Cramer, Lond.
**D.**—Mr. H. Dickinson, Lond.; Dr. H. Drinkwater, Wrexham; Dr. G. Dinolt, Vienna; Mr. F. G. Davies, Worcester.
**E.**—Capt. J. I. Enright, R.A.M.C., Liverpool; Mr. A. B. Elliott, Abergele; Epsom College, Sec. of; Miss E. Evans, Cardiff.
**F.**—Dr. J. Freeman, Lond.; Factories, Chief Inspector of, Lond.; Mr. A. G. T. Fisher, Horley; Dr. A. Foster, Christchurch, N.Z.; Dr. R. S. Fullarton, Glasgow; Mr. J. E. S. Frazer, Lond.
**G.**—Mr. A. W. Green, Lond.; Mr. A. P. Gibbons, Lond.; Dr. H. H. Gellert, Bradford; General Nursing Council, Lond.; Dr. H. E. Garrett, Lond.; Mr. H. T. Gray, Lond.; Gloucestershire Surgical Appliances Co., Cheltenham.
**H.**—Dr. R. C. Holt, Didsbury; Mr. C. A. Hoeffteke, Lond.; Hunterian Society, Lond.; Mr. C. Higgens, Lond.; Major H. P. Hehir, I.M.S.; Dr. J. K. Haworth, Newcastle-on-Tyne; Harrogate Royal Baths, General Manager of.
**I.**—Incorporated Association for Promoting the General Welfare of the Blind, Lond.; Insurance Committee for the County of London; Illuminating Engineering Society, Lond.
**J.**—Dr. S. B. Jackson, Lond.; Mrs. F. E. Johnson, Southborough.
**K.**—Dr. D. Keilin, Cambridge; Dr. W. H. Kesteven, Kingston; King's College Hospital Medical School, Lond., Sec. of.
**L.**—Miss E. Lowry, Lond.; Mr. E. M. Little, Lond.; Dr. J. C. G. Ledingham, Lond.; Mrs. C. Loy, Rochester.
**M.**—Ministry of Health, Lond.; Mission to Lepers, Lond., Sec. of; Dr. R. Morton, Lond.; Mr. T. Martin, Bristol; Dr. R. O. Moon, Lond.; Dr. J. S. Maher, New Haven; Medico-Legal Society, Lond.; Mr. U. Marks, Swansea; Ministry of Agriculture and Fisheries, Lond.
**N.**—Sir A. Newsholme, Ripon; National Baby Week Council, Lond.; Dr. H. B. Newham, Lond.; National Safety Council, Chicago; National Council for Combating Venereal Disease, Lond.
**P.**—People's League of Health, Lond.; Dr. H. R. Phillips, Lond.; Panel Committee for the County of London; Sir D'Arcy Power, Lond.; Polish Red Cross Society, Lond.; Dr. R. Pagniello, Melfi; Psycho-Neurological Society, Lond., Hon. Sec. of; Dr. G. A. Casales de Pury, Cannes; Sir Arthur Pearson, Lond.; Mr. H. Platt, Manchester.
**R.**—Mr. H. Rundle, Southsea; Rontgen Society, Lond.; Dr. J. D. Rolleston, Lond.; Dr. W. C. Rivers, Worsboro' Dale; Royal Society, Lond.; Royal Institution of Great Britain, Lond.; Royal Society of Arts, Lond.
**S.**—Mrs. J. E. Smith, Bradford; Capt. C. F. Strange, Chatham; Prof. W. Stirling, Manchester; Dr. E. W. Scripture, Lond.; Mr. E. G. Slesinger, Lond.; Society for the Prevention of Venereal Disease, Lond., Hon. Sec. of; Society of Tropical Medicine and Hygiene, Lond.; Save the Children Fund, Lond.; Dr. J. J. Scanlan, Lond.; Dr. C. Singer, Oxford; Dr. W. D. D. Small, Edinburgh; Society of Apothecaries of London, Clerk of.
**U.**—University of London, Publications Sec. of; Mr. E. Upchurch, Lond.
**V.**—Miss H. Vansittart, Lond.; Dr. S. M. Vassalo, Uganda; Vermont State Medical Society, Sec. of.
**W.**—Capt. E. J. Wyler, R.A.M.C., Portsmouth; West London Hospital Post-Graduate College; Mr. H. G. Wharry, Lond.; Dr. J. G. Watkins, Bootle; West London Medico-Chirurgical Society, President and Council of; Mr. A. Warmington, Lond.; Dr. J. D. Wynne, Norwich; Dr. C. Westman, Lond.

**Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.**

# Notes, Short Comments, and Answers to Correspondents.

## THE CHINESE HOSPITAL IN FRANCE, 1917–1919.

BY C. FREDERICK STRANGE, M.R.C.S., F.R.G.S.,
CAPTAIN, R.A.M.C.; MÉDAILLE D'HONNEUR DES ÉPIDÉMIES.

IT is possible in this article to tell only part of the story of the First Chinese General Hospital in France, and of all the good work that was done there. When it was realised that the outcome of the Great War was going to be determined by man power, and that every Britisher available was wanted for the firing line, it was decided to form a corps recruited from Chinese voluntary labour for work on the lines of communication and at the ports. From small beginnings the corps rapidly assumed great dimensions, so that when the Armistice was signed there were approximately 130,000 Chinese labourers in France all on a three years' agreement. Noyelles was chosen as Chinese Depôt Headquarters and a large hospital built there for the sick and wounded. This was the main hospital, but there were smaller ones established in various centres such as Calais, Boulogne, Dieppe, Rouen, which acted as feeders to the one central base hospital, which was known originally as No. 1 Chinese General Hospital (to which I acted as surgical specialist), but afterwards as No. 3 Native Labour General Hospital. Commencing in the spring of 1917, while the battle of Arras was still raging, it grew rapidly in dimensions to a 2000-bedded hospital.

The greatest number of in-patients on any one day was 2600. When hostilities ceased there was not a better organised or better equipped hospital in France, and under the able command of Lieutenant-Colonel G. Douglas Gray, of the British Legation, Peking, there grew up large special departments to cope with the ever-increasing demands. These departments, each under the charge of specialists, included: surgical, medical, ophthalmic, mental, tuberculosis, leprosy, venereal, pathological and bacteriological. The hospital covered a very large area and, fortunately, had plenty of room to expand.

Speaking generally, there were no special diseases peculiar to the Chinese, but uncommon diseases such as leprosy, insanity, and tuberculosis with various unusual clinical manifestations, occurred. Diseases of the eyes necessitated special treatment to prevent their spread amongst British troops and the French population, with whom the Chinese mixed freely.

There was a peculiar and insistent belief prevalent amongst a large section of the British Army that there were many Chinese women amongst the labourers in the Chinese Labour Corps. But I gladly take this opportunity of denying this charge. There was not a single woman amongst them, though some of the Chinese labourers, either in facial appearance or in dress, appeared like women to the eyes of the untravelled Westerner.

### *Medical Examination.*

The Corps was recruited from picked labourers, mostly from North China, where the climate resembles that of Northern France. All were submitted to a thorough medical examination at Wei-hai-wei or Shanghai before embarkation. Many thousands were rejected in China as unfit. After a long voyage round the world they ultimately arrived in France, and were immediately taken to the Headquarter Depôt, where they had to undergo another most thorough inspection by the medical officers of the hospital. Every recruit was examined by at least three doctors before he was passed as fit into a labour unit. This examination was undoubtedly very amusing to those who had the opportunity to witness it and who do not know the Oriental. The men were assembled in companies spread out in long lines on a wide field reserved for the purpose. They came along in single file to the doctor who examined first the throat, abdomen, and limbs; the throat and neck with special reference to mumps and tubercular glands; the abdomen with special reference to enlarged spleen and intestinal troubles; and the musculature of the arms and legs to detect any evidence of beri-beri or leprosy. When passed they ran away shouting for joy to another part of the field, where they were stripped behind screens and a thorough urino-genital examination was carried out for any evidence of syphilis or gonorrhœa. Thence they were conducted to another part of the field, where the eye specialists—always two or three in number—examined their eyes, especially for trachoma, which is very common amongst the Chinese. On the whole, the various shipments arrived in excellent health. Any found diseased were immediately admitted to hospital and not allowed to leave until cured.

*"The Old Disease."*

Amongst medical diseases tuberculosis was far the most rampant and destructive to life. It was astonishing to note the rapidity with which men, apparently healthy on arrival in France, fell victims to this disease. We had many special wards where all cases of tuberculosis were isolated, and, generally speaking, the only deaths which occurred in hospital were from phthisis or other forms of general tuberculosis. The hospital cemetery at Noyelles bears testimony by the hundreds of white crosses to the ravages of this disease amongst the Chinese. Almost every day there was at least one death from phthisis. We had special wards for surgical tuberculosis, so that this disease was isolated at once and everything done to prevent its spread. The Chinese as a nation have suffered from pulmonary tuberculosis for many centuries past, so that it is now called by them by the significant title "The Old Disease." Major Graham Aspland made a very efficient officer in charge of the Medical Division, and when he went to China in charge of a hospital ship full of the sick and afflicted his place was efficiently taken by Captain E. J. Peill.

*Lunacy.*

I cannot explain why so many Chinese went mad in France. Our mental hospital was very well organised indeed and came in for universal praise from visitors. Frequently there were over a hundred insane Chinese housed in it. Captain H. L. Fearn, of Shanghai, made an excellent officer in charge. He lived in the same compound with the insane and slept on the same premises within barbed wire. Very rarely a lunatic escaped. One religious maniac managed to do so. He was always wanting everybody to baptise him, and he got upon the top of the hut one day in search of someone for this purpose and fell off, breaking his right tibia and fibula. He was admitted to one of my surgical wards and I successfully plated his tibia, but he had to be shackled to the bed all the time he was in my ward. When healed, he returned to the mental compound, but took the first opportunity to escape. How he managed the barbed wire no one knows, but he was found at 5 A.M., at a height of 20 feet, on the top of the water-tank—the main hospital supply—trying to defile the water. He resisted all efforts to get him down, a free fight ensued, and he fell, again grazing the old broken leg from knee to ankle, but his leg stood the strain well and it made no difference to the plate. Another lunatic pierced his abdomen 14 times with a pointed steel file, bending the tip of it against his lumbar vertebræ in his determined efforts to kill himself. However, all the 14 wounds in his intestines were sutured, and he made a good recovery. But he developed maniacal symptoms again, and was readmitted to the mental block. We were sorry at the relapse, because he was skilled at wood-carving, and did some exquisite work.

*Leprosy, Venereal Disease, Influenza.*

As the war went on leprosy began to manifest itself amongst the Chinese. So we had to establish a small leper colony, of which there were a dozen inmates when the Armistice was signed. All symptoms of leprosy developed after arrival in France, and the disease was usually observed by M.O.s who had been familiar with it in China.

Our venereal wards were always full and an amazing amount of salvarsan and mercury had to be used.

During the influenza epidemic, which caused so much havoc amongst European troops, the Chinese were not great sufferers. We had special wards for influenza cases. It ran very much the same course as amongst the soldiers, with the same clinical manifestations. We were lucky in having a comparatively small mortality list.

*Ophthalmic and Surgical Cases.*

Perhaps the most widely known medical work amongst the Chinese was in connexion with the ophthalmic department. Trachoma is a disease very common in North China, and every precaution was taken to prevent its spread in France. Every Chinese Labour Corps unit from Calais to Verdun was regularly inspected by our eye specialists. This involved an enormous amount of travelling and incessant work. The ophthalmic wards were separated by a road from the general hospital, and all these unhappy sufferers were rigidly isolated, one part under canvas for ordinary conjunctivitis, and other wards for trachoma. When well enough to work the latter were formed into special trachoma companies, and were not allowed to mix with other labourers. At their special depôts they were under constant medical supervision, and were provided with all facilities for carrying out the special treatment for this disease.

The surgical cases were many and varied. The surgical specialist was much envied by visitors to the hospital, who were invariably surprised at the number, variety, and interest of the surgical cases, and expressed unreservedly their appreciation of the excellence of the surgical work. There were six surgical wards of 50 beds each and these were always full. This being the "Blighty" base hospital for the Chinese we had a remarkable lot of clean surgical work, as well as a fair share of those wounded by bombs, shells, aerial torpedoes, explosions, and accidents.

*Hospital Nursing.*

The nursing in the hospital was done entirely by Chinese male nurses and dressers, who had had a certain amount of hospital training in mission hospitals in China and who were brought over from China for this special duty. There was never a large enough supply of English nurses in France to spare any for the Chinese Hospital, and yet the cleanliness of the wards and the good nursing were the subjects of frequent comments by visiting sisters and nurses. The hospital garden provided an ample supply of vegetables, and we took seven prizes at the British Exhibition of Agriculture at Abbeville in 1918. The splendid discipline displayed and the fact that Chinese-speaking medical officers, who knew and understood the Chinaman, were gathered together for duty at this hospital reflects the greatest credit upon the O.C., Lieutenant-Colonel G. Douglas Gray.

Politically it was of the greatest importance that we did well for these 130,000 Chinese in France, for each one passed through the hospital at least twice, if not oftener, and their good report may help to cement Anglo-Chinese friendship in a country growing in importance every day. I would conclude by pointing out what splendid scope there is for British medical education in China to-day. It ought to be seized by us before any other nation gets in, as the Germans did in Japan, and robs us of a great opportunity.

## MOTHER STAYS AT HOME.

WE appeal constantly to our readers to help to get for children a temporary sojourn in the country, and in no way can money be better spent than in improvement of health and provision of pleasure. With the latter object only in view subscriptions are collected by numberless kindly organisations to provide days in the fields for children. The mothers of these children are grateful alike for the happiness of their offspring and for the day's rest which they obtain from the endless moil of poor parenthood. But when the strain on the working-class mother is recognised—and to medical men it is a familiar circumstance—it is impossible not to see that it is often the mother rather than the child that is in need of the change of air and environment. The situation of such a mother was brought home at the Æolian Hall last week, where a mixed programme of vocal and instrumental music and recitation was given by Miss M. Foster, Miss M. K. Snowden, and Miss Louise Perceval-Clark. One of Miss Perceval-Clark's recitations set out pathetically, but without mawkishness, the intense longing for the country which may fall upon a mother when thinking of and rejoicing in the delight of one of her children who was starting for a day in the country. This situation cannot be wholly met, because while the children can go into the country without their mothers, the mothers cannot go into the country without the children. We commend to Miss Perceval-Clark, who herself writes what she recites, the remedy for this dilemma as a subject for a recitation. The continued physical and nervous strain to which the poor mother is subjected is a matter the importance of which has long been clear to the medical profession.

## BRISTOL BOARD OF GUARDIANS AND A CONSULTING MEDICAL STAFF.

THE Bristol board of guardians is advertising for a visiting consultant staff for the Southmead Infirmary, shortly to be opened. A medical and surgical specialist will be appointed each at a salary of £100 per annum, also a physician for diseases of children (£50 a year) and another with special qualifications for ear, throat, and nose diseases. The terms offered to the latter, as also to a dental surgeon, are a retaining fee of £5 per annum and a fee per visit to be arranged later.

## LIFE IN JAMAICA.

*To the Editor of* THE LANCET.

SIR,—As a recent visitor to Jamaica I would strongly advise any medical man who contemplates sending patients there to make careful inquiries before doing so. To me it seems that it is no place for an invalid at the present time. By the direct route, which is to be avoided, the voyage, generally unpleasant in winter, may take from 14 to 23 days, but on arrival at Kingston the traveller may find that there are no rooms to be had, and may have to return in the boat he went out in. If he has gone to the expense of engaging rooms by cable he may be told at the hotel that in spite of their cabled promise no rooms have been reserved for him. The hotels are for the most part primitive. It was stated in a daily paper last winter that prices in Jamaica were low and living cheap. Things seem to have changed, for they are nothing of the kind. The visitor must make up his mind to rough it and pay heavily for the privilege.

I am, Sir, yours faithfully,

Norfolk-street, W. 1, April 26th, 1920. H. G. WHARRY.

## PUBLIC HEALTH IN BRITISH GUIANA, 1918.

THE year 1918 was an unhealthy one in British Guiana, owing to influenza, malaria, and other causes. The total death-rate was 40·6 per 1000, a considerably higher ratio than in any previous year since 1868; the birth-rate, 25·1, was lower than in any year since 1894. The chief cause of increased mortality was the invasion of influenza which appeared in a mild form and over a restricted area in July and August, and again as a widespread epidemic of severe type throughout the colony in November and December. Surgeon-General J. H. Conyers, who presents the report, states that "it is not possible to give the actual deaths from influenza, for many were uncertified, and many certified as pneumonia and bronchitis were probably due to influenza." It is stated in paragraph 183 that the registration district of Mara suffered most "with the extraordinary mortality of 778 per mille." This would certainly be an extraordinary mortality; but there is some mistake, as the deaths from all causes in this district numbered 119 in a population of 3501 (34·0 per 1000), as stated in Table 23. On the Mara sugar estate 112 deaths occurred during January in a population of 539—that is, 207·8 per 1000 for the month.

Enteric fever prevailed in Georgetown and the district of Peter's Hall, as in the previous year. Typhoid and paratyphoid vaccine was supplied by the Bacteriological Department and distributed extensively (20,275 doses in 1917 and 10,372 doses in 1918 for the whole colony), with good results. Ankylostomiasis is being controlled by the erection of latrines and the treatment of all persons found to be infected. There was an increase in malaria (1680 deaths), the ratio (54 per 1000) being higher than in any year since 1911. In the report for 1917 it had been stated that—

"A special malarial gang is absolutely necessary, constantly at work under the control of one who has had special experience and training in this work in this colony. If these gangs are supplied it would be easy to reduce the malaria deaths and sickness in any community, estates as well as villages, by a third and probably in a few years by two-thirds or three-quarters. This is the proper and only cheap method of preventing this terrible disease. ..... Quinine can never take the place of permanent and thorough drainage, with careful and constant attention to unavoidable water collections."

This is undeniable, and has been an ascertained fact for many years past. At the same time, quinine administered prophylactically has a distinct value. It was found that on the sugar estates, "where more care is taken in the drainage of the 'yards' and quinine is given more regularly, the malaria-rate is much lower than in the adjacent villages."

## "CHASTITY BY TERRORISATION."

THE suggestions for the control of venereal disease, issued by the Medical Women's Federation,[1] were printed in full in the *Guy's Hospital Gazette* for Feb. 21st. In the succeeding number of the same journal there appears a spirited criticism of some of these suggestions over the initials "G. H. F. G.," who quotes a sentence in which the fear is expressed that from the use of prophylaxis "a phase of society would be produced as vicious and degenerate as any of which history has record. ..... Moral degeneration and sex excesses would rot the very foundation of society." What were the foundations of society doing, asks "G. H. F. G." before 1493, when syphilis was introduced into Europe? And in rural Ireland, where venereal disease is unknown, do we find a phase of society as vicious and degenerate as any of which history has record? He finds in their arguments a "policy of chastity by terrorisation," and claims that no real moral advance can be made along such lines. As regards the practical efficacy of prophylaxis, the writer quotes the experience of a flotilla in the Eastern Mediterranean, in which the method was strikingly successful. He points out that the men had every incentive to preserve themselves from infection—an important condition, and one not always obtained in the army.

For our part we do not find "G. H. F. G.'s" comparison of two different epochs very helpful. The greater freedom of action now enjoyed by girls of the enormous middle-class, which did not then even exist, and the increased knowledge of methods to prevent conception, have altered social life to an extent which makes the comparison futile. The real difference between the two standpoints rests on opposing premises. "G. H. F. G." interprets certain evidence as a proof that properly organised packet systems are efficacious, whereas the Women's Federation pin their faith to statements from equally reliable authorities asserting the reverse. The Federation expressly disclaims the view attributed to them—namely, the advocacy of retaining disease as a deterrent from promiscuous indulgence. Their point is rather that the official issue of packets would encourage a false sense of security, leading to increased indulgence, and therefore to increased disease. The problem of whether the use of prophylactic packets, if proved effective, is to be condemned has apparently not been considered by the Federation of Medical Women.

[1] THE LANCET, Feb. 14th, 1920, p. 3

## THE MATRIARCHAL FAMILY IN FRANCE.

THE grave question of depopulation in France that has already been frequently discussed in the French medical press, and was the subject of an annotation in THE LANCET of April 3rd (p. 779), is taken up again by Dr. Paul Carnot in the *Paris Médical* of April 17th. After pointing out that in 20 years' time the French race will be swept out of existence if French women do not make what he calls a superhuman effort of maternity, M. Carnot very frankly states the actual conditions and their possible remedy. There are now in France 2,000,000 unmarried women capable of bearing children and deprived of husbands by the war. To take the place of the men who have been killed there are two alternatives: (1) to marry French women to foreigners—a solution that seems to M. Carnot very dubious, and one which has had, so far, no encouragement from the authorities, although it is the only way in which it is possible to secure legal husbands for French women; (2) to permit polygamy during a certain period—a solution that no one wants, and which would be probably useless, as men already find it difficult enough to support one woman, and restrict their families on that account.

Before suggesting the only alternative he sees, M. Carnot quotes some Danish statistics to prove that in Europe there are now 15,000,000 more women than men, a figure that he thinks shows the necessity for a matriarcal family composed only of mothers and children, of which he reminds his readers that many civilisations have given examples. This matriarchal family would only be possible if it were State-supported, and basing his argument on the fact that the supreme law of a race is not to perish, M. Carnot strengthens his defence by the axiom that in a well-organised society maternity ought to be a woman's career, since, socially speaking, every woman ought to become a mother. This career for women has never been properly organised, but should be both honoured and recompensed, and the day when maternity is made a remunerative career many women will have children who now hesitate before the expense of bringing them up, and the uncertainty of the future.

Finally, M. Carnot believes that if it were not for the opposition of public opinion many women would be glad to satisfy their maternal instinct and become the mothers of children, who would be their companions in old age. If this be true the question is largely one of public opinion and economics. Before asking a woman to bear children her future and theirs must be assured by the State. To provide funds the people who have not fulfilled their social duties to the State should be obliged to leave their money to support the children of those who have.

## PLURAL BIRTHS IN THREE GENERATIONS.

*To the Editor of* THE LANCET.

SIR,—On April 16th I attended Mrs. E. P. in her confinement with twins. Her sister in three confinements had twins each time. Her mother had triplets and her grandmother also. It is not often, I think, that twins and triplets occur in three generations.

I am, Sir, yours faithfully,

Bristol, April 20th, 1920. THEODORE MARTIN.

## HOME HELPS.

*To the Editor of* THE LANCET.

SIR,—I read with interest your annotation in THE LANCET of April 10th on this subject. We have established here a service of home helps, although the difficulty in obtaining satisfactory women is very great. It must, I think, be admitted that the home help who would satisfy every mother to whose house she is sent would, indeed, be a very extraordinary person. We have temporary home helps who are paid 3*s*. a day and their food when they are acting for us. From the ranks of these the most satisfactory are sent for a course of training to a hostel for illegitimate babies. They stay there six weeks and we pay for their maintenance whilst they are being trained. Before they are sent for training they sign an undertaking to remain in our service for 12 months after its completion. They are then taken on the permanent staff and are paid 3*s*. a day with food when employed as home helps, and 1*s*. 6*d*. a day on the rare occasions when we have no work for them. During this period they can obtain other work should they desire, subject to their responding to a call within 12 hours. The mothers, to whose homes they are sent, make a contribution towards the cost, in many cases paying it all, and most of them are very grateful indeed for the assistance which we can render to them.

I am, Sir, yours faithfully,

W. ALLEN DALEY,

April 19th, 1920. Medical Officer of Health, Borough of Bootle.

*W. H. K.*—The admirable suggestion is in harmony with all that we have been saying for years past.